Atlantic Richfield Company

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Anthony R. Brown
Project Manager, Mining

Mr. Ken Maas
United States Forest Service Region 4
Humboldt Toiyabe National Forest
1200 Franklin Way
Sparks, NV 89431

RE: 2017 Annual Road Operating Plan
Leviathan Mine Road
Alpine County, California

Dear Mr. Maas:

This 2017 Annual Road Operating Plan has been prepared by Copper Environmental Consulting (CEC) on behalf of Atlantic Richfield Company (Atlantic Richfield) to support ongoing U.S. Environmental Protection Agency (U.S. EPA) required Removal Action (RA) and Remedial Investigation/Feasibility Study (RI/FS) activities at the Leviathan Mine Site (site) located in Alpine County, California (CA). This Annual Road Operating Plan has been prepared in accordance with the U.S. Department of Agriculture (USDA) Forest Service Road Use Permit which was issued to Atlantic Richfield by the Forest Service on July 16, 2013.

In accordance with the Road Use Permit, this Annual Operating Plan provides:

- The anticipated road use including approximate dates, duration and extent of use, and the anticipated products to be hauled by the Atlantic Richfield project workforce (all Atlantic Richfield employees, contractors, and subcontractors working at the site);
- A traffic management plan;
- A listing of the Atlantic Richfield project workforce who are expected to use the roads during 2017; and
- Road maintenance foreseen to accommodate the expected traffic while maintaining the integrity of the roads.

BACKGROUND

Access to the site is provided by Leviathan Mine Road, also known as Forest Service Road 10052, which is an unpaved road that connects to California State Route 89 (SR 89) over Monitor Pass to United States Highway 395 (US 395) in the Double Spring Flat area between Gardnerville, Nevada (NV) and Topaz Lake, NV. Leviathan Mine Road extends approximately nine miles between US 395 and the site to the east (NV Access Route) and approximately three

miles from SR 89 to the site on the west (CA Access Route). Leviathan Mine Road skirts the eastern boundary of the site with access through the site via Forest Service Road 10348. Access through the site is controlled by gates that are kept closed and locked to prevent unauthorized access.

Atlantic Richfield and their contractors will continue with RA and RI activities under U.S. EPA oversight in 2017. Required work activities include operating and maintaining the Aspen Seep Bioreactor (ASB) and High Density Sludge (HDS) Treatment Systems. These activities will be conducted to treat acid drainage (AD) from the Aspen Seep, Delta Seep, and Channel Underdrain. This work is being performed in accordance with the *Removal Action Work Plan*[1], as amended, submitted to the U.S. EPA by Atlantic Richfield on March 1, 2013. In addition, RI field activities will be performed in accordance with work plans submitted to and approved by the U.S. EPA.

ROAD USE

The bulk of field activities during 2017 will occur during the Atlantic Richfield Work Season (ARWS), which is the period from June 1 through September 30. Work may commence during the Limited Access Season (LAS), which is the period from October 1 through May 31, at times when personnel, equipment, and supplies can safely access the site. Access to the site via wheeled vehicles may occur throughout the LAS, depending on weather and road conditions. Additionally, wheeled vehicle access will continue throughout the ARWS as conditions allow. During the LAS when significant snow cover is present, the Atlantic Richfield project workforce may utilize Leviathan Mine Road to access the site via snowmobile. An estimate of the vehicle traffic (other than by snowmobile), including supplies to be hauled, is provided in Table 1. A list of the primary Atlantic Richfield project workforce that will use the roads as authorized by the Road Use Permit is provided in Table 2.

[1] Atlantic Richfield, 2013, *Removal Action Work Plan*, prepared by AMEC Environment & Infrastructure, Inc., March. Includes Amendment 2014-01 (2014 Annual Amendment), 2014; Amendment 2015-01 (2015 Annual Amendment), 2015; Amendment 2016-01 (2016 Annual Amendment), 2016; and Amendment 2017-01 (2017 Annual Amendment), 2017, prepared by Copper Environmental Consulting.

TRAFFIC MANAGEMENT PLAN

The Atlantic Richfield project workforce will access the site under the guidelines set forth in the *Traffic Management Plan, Revision 11* (Traffic Management Plan)[2], included as Attachment A, and the *Leviathan Mine Site Health, Safety, Security, and Environment Program Document, Version 8.0* (HSSE Program Document)[3]. However, Atlantic Richfield is not assuming responsibility for vehicles operated by or on behalf of the Lahontan Regional Water Quality Control Board (LRWQCB), the U.S. EPA, or other parties that utilize the roads in the vicinity of the site.

The Traffic Management Plan sets forth the guidelines for all vehicles including medium (single-unit) to heavy duty (tractor-trailer) trucks accessing the site by or for Atlantic Richfield. These guidelines will be followed throughout the project so that the transportation of personnel as well as the delivery of materials and goods to and from the site can be accomplished safely while minimizing impact to the surrounding community including public use of the roads and the environment.

The Traffic Management Plan requires that Atlantic Richfield project-related traffic on the CA Access Route to be limited to single-unit trucks (i.e., 12-wheel trucks or smaller) less than 30 feet in length overall (LOA), pickups and medium duty trucks, and all passenger vehicles. The Traffic Management Plan also outlines administrative controls such as enforcing the designated/posted speed limit (i.e., 15 miles per hour [mph] in front of the residences on the NV Access Route and the entire CA Access Route), maintaining mirrors on blind corners, utilizing time-based travel restrictions, and limiting the use of the road to promote safe travel while eliminating the need for two-way traffic control as utilized in the past. If necessary, traffic control may be employed during periods of expected high traffic volume to enforce one-way traffic.

The Atlantic Richfield project workforce will utilize the NV Access Route for larger industrial traffic (i.e., single-unit trucks greater than 30 feet in LOA and/or tractor-trailers), with minor exceptions and only under rare circumstances. Traffic control may be utilized: when there are

[2] Atlantic Richfield, 2017, *Traffic Management Plan, Revision 11,* prepared by Copper Environmental Consulting, March.

[3] Atlantic Richfield, 2017, *Leviathan Mine Site Health, Safety, Security, and Environment Program Document, Version 8.0*, prepared by Amec Foster Wheeler, March.

wide loads; when there are more than two single-unit or tractor-trailer trucks scheduled to utilize the road on the same day; when road maintenance activities are being executed; and whenever excessive traffic is expected on the road. Tractor-trailer trucks will be piloted to the site regardless of the presence of traffic control. These proposed measures will be utilized along the NV Access Route to ensure the safety of the Atlantic Richfield project workforce and the general public.

Tractor-trailer truck traffic on Forest Service Road 10052 between Forest Service Road 10348 and the ASB Treatment System (Aspen Access Route) will be piloted by the Atlantic Richfield project workforce without utilizing traffic control services under most circumstances. Atlantic Richfield has not established size restrictions for traffic on the Aspen Access Route.

ROAD MAINTENANCE PLAN

In order to accommodate the scheduled Atlantic Richfield activities during the 2017 ARWS and LAS, road maintenance may be required. Atlantic Richfield will perform road maintenance commensurate with their use, and only to the extent necessary to properly accommodate the permitted use of the roads by the Atlantic Richfield project workforce. Accordingly, the road maintenance activities described below address the foreseen road maintenance needs.

The road maintenance activities will address the various access routes into the site, including:

1) Leviathan Mine Road extending approximately nine miles between US 395 and the site to the east (NV Access Route);

2) Leviathan Mine Road extending approximately three miles from SR 89 to the site on the west (CA Access Route);

3) Forest Service Road 10348 passing through the site and connecting to Leviathan Mine Road on both the east and west sides of the site; and

4) The portion of Leviathan Mine Road extending east past Forest Service Road 10348, to the ASB Treatment System (Aspen Access Route).

The road maintenance activities presented in Table 1 address estimated monthly industrial truck traffic for each road/route, including: estimated traffic type; truck weight, width, and length; and probable maintenance activities required as a result of this traffic.

Prior to commencing work at the site during the LAS or the ARWS when wheeled vehicles will be utilized as the primary mode of transportation, all access routes will be evaluated to

determine the extent of winter damage and the degree of water saturation present on each road. Large, heavy equipment will not be mobilized to the site until the roads have dried sufficiently and any large debris has been removed from the roadway. If the roads are severely rutted or have washed out areas because of spring runoff conditions, Atlantic Richfield will coordinate with the USDA Forest Service and other users to arrange for the performance of road maintenance work necessary to allow Atlantic Richfield project-related traffic to safely access the site.

Normal road maintenance activities to be conducted on an as-needed basis may include:

- snow removal (anticipated at the beginning and end of season only);
- grading/resurfacing to maintain smoothness;
- clearing, grading, and maintaining drainage culverts, catch basins, and ditches;
- maintaining drainage and safe performance of drivable dips;
- maintaining road signs and mirrors;
- using a water truck or dust suppressant to control dust;
- sweeping sediment from the paved "hair-pin" turn on the NV Access Route;
- trimming/removal of vegetation that may be encroaching upon the roads or inhibiting the line of sight for vehicles using the roads;
- keeping the roadways clear of debris that may slide off the hillsides; and
- monitoring of the section of road above the hair-pin turn for signs of potential slope movement.

These road maintenance activities will be conducted in accordance with the Leviathan Mine Road Maintenance and Resurfacing Specifications included in the Traffic Management Plan (Attachment A). The criteria for assessing when road maintenance activities are needed, a description of the activities, and applicable best management practices (BMPs) are provided in Table 3.

Road signs and mirrors (signage) are an integral component of maintaining safe access to and from the site. The *Signage Plan, Revision 4* (Signage Plan)[4], included as Attachment B, has been prepared to promote safe travel on Leviathan Mine Road. The Signage Plan documents the existing signage installed and maintained by Atlantic Richfield and provides guidelines for

[4] Atlantic Richfield, 2017, *Signage Plan, Revision 5*, prepared by Copper Environmental Consulting, March.

the installation of additional signage that may be necessary to mitigate risks posed to traffic accessing the site.

Additional road maintenance activities on the NV Access Route may include reapplying a dust suppressant to control dust on Leviathan Mine Road along an approximate 1.75-mile stretch of roadway. This section commences from approximately 0.05 miles from the intersection with US 395 and ends at the turnoff toward River Ranch Road. If a dust suppressant is needed, Atlantic Richfield will coordinate work activities with the USDA Forest Service. The *Dust Suppression Plan, Revision 6* (Dust Suppression Plan)[5], included as Attachment C, has been prepared to reduce dust generation on Leviathan Mine Road related to the Atlantic Richfield project workforce accessing the site. The Dust Suppression Plan describes the potential dust suppression techniques that may be employed and provides guidelines for the application of dust palliatives (i.e., Envirotac II®) that may be necessary to mitigate dust generation.

Although the traffic listed in Table 1 is considered accurate, it is an estimate and is subject to change. If unanticipated traffic is expected that is substantially different from that in Table 1, the USDA Forest Service will be contacted and road maintenance activities will be adjusted as necessary while still adhering to requirements described in the Leviathan Mine Road Maintenance and Resurfacing Specifications included in the Traffic Management Plan (Attachment A).

Your consideration of this 2017 Annual Road Operating Plan is greatly appreciated. If you have any questions or comments, please feel free to contact me at (657) 529-4537 or via email at anthony.brown@bp.com or Mike Johnson with CEC at (406) 563-2700 or via email at mike.johnson@copperenv.com.

Sincerely,

Anthony R. Brown
Atlantic Richfield Company
Project Manager Mining

[5] Atlantic Richfield, 2017, *Dust Suppression Plan, Revision 6*, prepared by Copper Environmental Consulting, March.

Attachments:

Table 1 - Estimate of Industrial Traffic and Proposed Maintenance
Table 2 - Primary Atlantic Richfield Project Workforce
Table 3 - Road Maintenance Activities

Attachment A - Traffic Management Plan
Attachment B - Signage Plan
Attachment C - Dust Suppression Plan

cc: Lynda Deschambault, U.S. EPA Region 9 – via U.S. Mail and electronic mail
Gary Riley, U.S. EPA Region 9 – via U.S. Mail and electronic mail
Doug Carey, Lahontan Regional Water Quality Control Board – via electronic mail
Nathan Block, Esq. BP – via electronic mail
Brian Johnson, BP – via electronic mail
Jack Marjerison, BP – via electronic mail
Adam Cohen, Esq., Davis Graham & Stubbs LLP – via U.S. Mail and electronic mail
Marc R. Lombardi, AMEC Foster Wheeler– via electronic mail
Mike Johnson, Copper Environmental – via electronic mail
Sandy Riese, EnSci, Inc. – via electronic mail
Greg Cederstrom, Syblon Reid Construction – via U.S. Mail and electronic mail
Jeremy Boucher, Broadbent & Associates, Inc. – via electronic mail

2017 ANNUAL ROAD OPERATING PLAN

TABLES

Leviathan Mine
Alpine County, California

April 2017

TABLE 1
Estimate of Industrial Traffic and Proposed Maintenance

Month	Access Route	Estimated # of Round Trips	Truck type/size (LxWxH) (ft)	Commodity hauled / estimated load weight (lbs)	Traffic control plan/signage requirements	Maintenance Activities[1]	Best Management Practices Utilized
April	NV Access Route Aspen Access Route	3	Pick-up	None	None	Road and culverts will be evaluated prior to mobilizing equipment or conducting maintenance.	Speeds will be maintained at 15 mph (CA Access Route and Aspen Access Route) or 25 mph (NV Access Route) or less to suppress dust.
	NV Access Route	3	3-Axle Grader Water Tanker Truck	Potable Water / 33,300	Flaggers controlling traffic	Use a grader to repair rutted and unsafe road conditions. Clean culverts as necessary.	Use water trucks to suppress dust and prevent fire during maintenance activities.
	NV Access Route	6	Low Boy / 55x8x11	Excavator, Pad Drum Roller / 60,000	Pilot Car	Rock Removal and roadside drainage repairs.	Speeds will be maintained at 15 mph or less to suppress dust.
	NV Access Route	50	18 Wheeler	Road Aggregate Material/60,000	Pilot Car	Aggregate for winter damage repair.	Speeds will be maintained at 15 mph or less to suppress dust.
	NV Access Route Aspen Access Route	1	2-Axle Stake Bed Truck / 37x8x10	Sanitation Equipment	Pilot Car	None	Speeds will be maintained at 15 mph or less to suppress dust.
	NV Access Route Aspen Access Route	2	2-Axle Sani-Hut Truck	Sanitation Maintenance	None	None	Speeds will be maintained at 15 mph (CA Access Route and Aspen Access Route) or 25 mph (NV Access Route) or less to suppress dust.
	NV Access Route	3	3-Axle Roll-off Truck / 40x8x10	Empty roll-off bins	Pilot Car	None	Speeds will be maintained at 15 mph or less to suppress dust.
	NV Access Route	4	2-Axle Pick-up Truck	6 Yard Garbage Bin	None	None	Speeds will be maintained at 25 mph or less to suppress dust.
	NV Access Route	2	Water Tanker Truck	Potable Water / 33,300	Pilot Car	None	Speeds will be maintained at 15 mph or less to suppress dust.
	NV Access Route	230	Pick-up / SUV	Personnel	See Traffic Management Plan (Attachment A)	None	Speeds will be maintained at 25 mph or less to suppress dust.
	NV Access Route	3	Low Boy / 55x8x11	Mini-Excavator, All Terrain Forklift, Skid Steer/60,000	Pilot Car	Construction Upper Pond Conveyance	Speeds will be maintained at 15 mph or less to suppress dust.
May	NV Access Route	4	Tractor Trailer / 40x8x11	Job Trailer / 25,000	Pilot Car	None	Speeds will be maintained at 15 mph or less to suppress dust.

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Month	Access Route	Estimated # of Round Trips	Truck type/size (LxWxH) (ft)	Commodity hauled / estimated load weight (lbs)	Traffic control plan/signage requirements	Maintenance Activities[1]	Best Management Practices Utilized
May (Cont.)	NV Access Route	1	Low Boy / 55x8x11	All-Terrain Forklift / 60,000	Pilot Car	None	Speeds will be maintained at 15 mph or less to suppress dust.
	NV Access Route	2	3-Axle Tanker / 32x8x10	Diesel / 33,000	Pilot Car	None	Speeds will be maintained at 15 mph or less to suppress dust.
	NV Access Route CA Access Route Aspen Access Route	4	2-Axle Sani-Hut Truck	Sanitation Maintenance	None	None	Speeds will be maintained at 15 mph (CA Access Route and Aspen Access Route) or 25 mph (NV Access Route) or less to suppress dust.
	NV Access Route Aspen Access Route	1	3-Axle Tanker / 18x8x10	Propane / 32,000	Pilot Car	None	Speeds will be maintained at 15 mph or less to suppress dust.
	NV Access Route	8	Water Tanker Truck	Potable Water / 33,300	Pilot Car	None	Speeds will be maintained at 15 mph or less to suppress dust.
	NV Access Route CA Access Route Aspen Access Route	450	Pick-up / SUV	Personnel	See Traffic Management Plan (Attachment A)	None	Speeds will be maintained at 15 mph (CA Access Route and Aspen Access Route) or 25 mph (NV Access Route) or less to suppress dust.
	CA Access Route Aspen Access Route	2	3-Axle Grader Water Tanker Truck	Potable Water / 33,300	Flaggers controlling traffic	Use a grader to repair rutted and unsafe road conditions. Clean culverts as necessary.	Use water trucks to suppress dust and prevent fire during maintenance activities.
	CA Access Route Aspen Access Route	6	Low Boy / 55x8x11	Excavator, Pad Drum Roller / 60,000	Pilot Car	Roadside grading and drainage repairs.	Speeds will be maintained at 15 mph or less to suppress dust.
	NV Access Route	2	Flat Bed Trailer / 55x8x11	Dry Lime / 60,000	Pilot Car	None	Speeds will be maintained at 15 mph or less to suppress dust.
	NV Access Route	3	3-Axle Roll-off Truck / 40x8x10	Empty roll-off bins	Pilot Car	None	Speeds will be maintained at 15 mph or less to suppress dust.
	NV Access Route	1	Vacuum Truck	Water/10,000	Pilot Car	None	Speeds will be maintained at 15 mph or less to suppress dust.
	NV Access Route	1	Low Boy / 55x8x11	All-Terrain Forklift / 60,000	Pilot Car	None	Speeds will be maintained at 15 mph or less to suppress dust.
	NV Access Route	1	Low Boy / 55x8x11	Manlift / 60,000	Pilot Car	None	Speeds will be maintained at 15 mph or less to suppress dust.

TABLE 1
Estimate of Industrial Traffic and Proposed Maintenance

Month	Access Route	Estimated # of Round Trips	Truck type/size (LxWxH) (ft)	Commodity hauled / estimated load weight (lbs)	Traffic control plan/signage requirements	Maintenance Activities[1]	Best Management Practices Utilized
May (Cont.)	NV Access Route	1	Low Boy / 55x8x11	Skidsteer / 60,000	Pilot Car	None	Speeds will be maintained at 15 mph or less to suppress dust.
	NV Access Route	1	24x8x10 Equipment Trailer	Tools/ 10,000	None	None	Speeds will be maintained at 15 mph or less to suppress dust.
June	NV Access Route	1	3-Axle Tanker / 32x8x10	Diesel / 33,000	Pilot Car	None	Speeds will be maintained at 15 mph or less to suppress dust.
	NV Access Route Aspen Access Route	19	3-Axle Roll-off Truck / 40x8x10	Empty roll-off bins	Pilot Car	None	Speeds will be maintained at 15 mph or less to suppress dust. (ASB Solids)
	NV Access Route	4	Flat Bed Trailer / 55x8x11	Dry Lime / 60,000	Pilot Car	None	Speeds will be maintained at 15 mph or less to suppress dust.
	NV Access Route Aspen Access Route	2	3-Axle Drill Rig and Support Trucks	Drill Equipment / 40,000	Pilot Car	None	Speeds will be maintained at 15 mph or less to suppress dust.
	NV Access Route Aspen Access Route	4	Drill Rig Support Trucks and Trailers	Drilling Materials and Support Equipment / 25,000	Pilot Car	None	Speeds will be maintained at 15 mph or less to suppress dust.
	NV Access Route	4	Water Tanker Truck	Potable Water / 33,300	Pilot Car	None	Speeds will be maintained at 15 mph or less to suppress dust.
	NV Access Route CA Access Route Aspen Access Route	4	2-Axle Sani-Hut Truck	Sanitation Maintenance	None	None	Speeds will be maintained at 15 mph (CA Access Route and Aspen Access Route) or 25 mph (NV Access Route) or less to suppress dust.
	CA Access Route	4	2-Axle Garbage Truck	6 Yard Garbage Bin	None	None	Speeds will be maintained at 15 mph or less to suppress dust.
	NV Access Route CA Access Route Aspen Access Route	650	Pick-up / SUV	Personnel	See Traffic Management Plan (Attachment A)	None	Speeds will be maintained at 15 mph (CA Access Route and Aspen Access Route) or 25 mph (NV Access Route) or less to suppress dust.
	NV Access Route	6	Water Tanker Truck	Potable Water / 33,300	Pilot Car	None	Speeds will be maintained at 15 mph or less to suppress dust.
	NV Access Route	3	Asphalt Truck	Asphalt/40,000	Pilot Car	None	Speeds will be maintained at 15 mph or less to suppress dust.

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Month	Access Route	Estimated # of Round Trips	Truck type/size (LxWxH) (ft)	Commodity hauled / estimated load weight (lbs)	Traffic control plan/signage requirements	Maintenance Activities[1]	Best Management Practices Utilized
June (cont.)	NV Access Route CA Access Route Aspen Access Route	8	Low Boy / 55x8x11	Excavator, Skip Loader, Pad Drum Roller / 60,000	Flaggers controlling traffic	Grading will be performed on the section of the NV Access Route in front of the residential houses.	Speeds will be maintained at 15 mph or less to suppress dust.
	NV Access Route	15	Water Tanker Truck	Dust Suppressant / 33,000	Flaggers controlling traffic	Dust suppressant will be applied on the section of the NV Access Route in front of the residential houses and around the Pond 4 Parking area.	Use water trucks to suppress dust and prevent fire during maintenance activities.
July	NV Access Route	2	3-Axle Tanker / 32x8x10	Diesel / 33,000	Pilot Car	None	Speeds will be maintained at 15 mph or less to suppress dust.
	NV Access Route	12	3-Axle Roll-off Truck / 40x8x10	Full roll-off bins	Pilot Car	None	Speeds will be maintained at 15 mph or less to suppress dust.
	NV Access Route CA Access Route Aspen Access Route	4	2-Axle Sani-Hut Truck	Sanitation Maintenance	None	None	Speeds will be maintained at 15 mph (CA Access Route and Aspen Access Route) or 25 mph (NV Access Route) or less to suppress dust.
	CA Access Route	4	2-Axle Garbage Truck	6 Yard Garbage Bin	None	None	Speeds will be maintained at 15 mph or less to suppress dust.
	NV Access Route CA Access Route Aspen Access Route	450	Pick-up / SUV	Personnel	See Traffic Management Plan (Attachment A)	None	Speeds will be maintained at 15 mph (CA Access Route and Aspen Access Route) or 25 mph (NV Access Route) or less to suppress dust.
	NV Access Route Aspen Access Route	8	3-axle Roll-off Truck / 40x8x10	Full roll-off bins	Pilot Car	None	Speeds will be maintained at 15 mph or less to suppress dust.
	NV Access Route	8	Water Tanker Truck	Potable Water / 33,300	Pilot Car	None	Speeds will be maintained at 15 mph or less to suppress dust.
August	NV Access Route	1	3-Axle Tanker / 32x8x10	Diesel / 33,000	Pilot Car	None	Speeds will be maintained at 15 mph or less to suppress dust.
	NV Access Route CA Access Route Aspen Access Route	4	2-Axle Sani-Hut Truck	Sanitation Maintenance	None	None	Speeds will be maintained at 15 mph (CA Access Route and Aspen Access Route) or 25 mph (NV Access Route) or less to suppress dust.

TABLE 1
Estimate of Industrial Traffic and Proposed Maintenance

Month	Access Route	Estimated # of Round Trips	Truck type/size (LxWxH) (ft)	Commodity hauled / estimated load weight (lbs)	Traffic control plan/signage requirements	Maintenance Activities[1]	Best Management Practices Utilized
August (Cont)	CA Access Route	4	2-Axle Garbage Truck	6 Yard Garbage Bin	None	None	Speeds will be maintained at 15 mph or less to suppress dust.
	NV Access Route	1	18 Wheeler	Equipment for on-Site grading (bobcat, dozer, and/or excavator)	Pilot Car	None	Speeds will be maintained at 15 mph or less to suppress dust.
	NV Access Route	2	Water Tanker Truck	Potable Water / 33,300	Pilot Car	None	Speeds will be maintained at 15 mph or less to suppress dust.
	NV Access Route CA Access Route Aspen Access Route	320	Pick-up / SUV	Personnel	See Traffic Management Plan (Attachment A)	None	Speeds will be maintained at 15 mph (CA Access Route and Aspen Access Route) or 25 mph (NV Access Route) or less to suppress dust.
	NV Access Route	6	Low Boy / 55x8x11	Tracked Excavator, Forklift, Morooka, UTV / 60,000	Pilot Car	None	Speeds will be maintained at 15 mph or less to suppress dust.
	NV Access Route	6	Flat Bed Trailer / 55x8x11	Construction Supplies	Pilot Car	None	Speeds will be maintained at 15 mph or less to suppress dust.
	NV Access Route	6	Low Boy / 55x8x11	Excavator, Skip Loader, Morooka, / 60,000	Pilot Car	Aspen Seep Collection Drainage Improvements	Speeds will be maintained at 15 mph or less to suppress dust.
	NV Access Route Aspen Access Route	2	Low Boy/40x8x11	Mix Tank / 60,000	Pilot Car	Solids Management	Speeds will be maintained at 15 mph or less to suppress dust.
	NV Access Route Aspen Access Route	12	3-axle Roll-off Truck / 40x8x10	Full roll-off bins	Pilot Car	None	Speeds will be maintained at 15 mph or less to suppress dust.
	NV Access Route Aspen Access Route	5	3-axle Roll-off Truck / 40x8x10	Empty roll-off bins	Pilot Car	None	Speeds will be maintained at 15 mph or less to suppress dust.
	NV Access Route	1	Flat Bed Trailer / 55x8x11	Dry Lime / 60,000	Pilot Car	None	Speeds will be maintained at 15 mph or less to suppress dust.
September	NV Access Route	2	3-Axle Tanker / 32x8x10	Diesel / 33,000	Pilot Car	None	Speeds will be maintained at 15 mph or less to suppress dust.
	NV Access Route CA Access Route Aspen Access Route	8	Low Boy / 55x8x11	Excavator, Skip Loader, Pad Drum Roller / 60,000	Flaggers controlling traffic	Grading will be performed on the section of the NV Access Route in front of the residential houses.	Speeds will be maintained at 15 mph or less to suppress dust.

TABLE 1
Estimate of Industrial Traffic and Proposed Maintenance

Month	Access Route	Estimated # of Round Trips	Truck type/size (LxWxH) (ft)	Commodity hauled / estimated load weight (lbs)	Traffic control plan/signage requirements	Maintenance Activities[1]	Best Management Practices Utilized
September (Cont)	NV Access Route	8	Water Tanker Truck	Dust Suppressant / 33,000	Flaggers controlling traffic	Dust suppressant will be applied on the section of the NV Access Route in front of the residential houses	Use water trucks to suppress dust and prevent fire during maintenance activities.
	NV Access Route	1	Flat Bed Trailer / 55x8x11	Dry Lime / 60,000	Pilot Car	None	Speeds will be maintained at 15 mph or less to suppress dust.
	NV Access Route Aspen Access Route	1	3-Axle Tanker / 18x8x10	Propane / 32,000	Pilot Car	None	Speeds will be maintained at 15 mph or less to suppress dust.
	NV Access Route CA Access Route Aspen Access Route	320	Pick-up / SUV	Personnel	See Traffic Management Plan (Attachment A)	None	Speeds will be maintained at 15 mph (CA Access Route and Aspen Access Route) or 25 mph (NV Access Route) or less to suppress dust.
	NV Access Route CA Access Route Aspen Access Route	4	2-Axle Sani-Hut Truck	Sanitation Maintenance	None	None	Speeds will be maintained at 15 mph (CA Access Route and Aspen Access Route) or 25 mph (NV Access Route) or less to suppress dust.
	NV Access Route	2	Water Tanker Truck	Potable Water / 33,300	Pilot Car	None	Speeds will be maintained at 15 mph or less to suppress dust.
	NV Access Route CA Access Route Aspen Access Route	3	3-Axle Grader Water Tanker Truck	Potable Water / 33,300	Flaggers controlling traffic	Use a grader to repair rutted and unsafe road conditions. Clean culverts as necessary.	Use water trucks to suppress dust and prevent fire during maintenance activities.
	CA Access Route	4	2-Axle Garbage Truck	6 Yard Garbage Bin	None	None	Speeds will be maintained at 15 mph or less to suppress dust.
October	NV Access Route Aspen Access Route	1	3-Axle / 20x8x10	Sodium Hydroxide / 22,000	Pilot Car	None	Speeds will be maintained at 15 mph or less to suppress dust.
	NV Access Route Aspen Access Route	1	3-Axle / 20x8x10	Ethanol/ 22,000	Pilot Car	None	Speeds will be maintained at 15 mph or less to suppress dust.
	NV Access Route	1	Flat Bed Trailer / 55x8x11	Dry Lime / 60,000	Pilot Car	None	Speeds will be maintained at 15 mph or less to suppress dust.
	NV Access Route	1	Low Boy / 55x8x11	All-Terrain Forklift / 60,000	Pilot Car	None	Speeds will be maintained at 15 mph or less to suppress dust.

TABLE 1
Estimate of Industrial Traffic and Proposed Maintenance

Month	Access Route	Estimated # of Round Trips	Truck type/size (LxWxH) (ft)	Commodity hauled / estimated load weight (lbs)	Traffic control plan/signage requirements	Maintenance Activities[1]	Best Management Practices Utilized
October (Cont)	NV Access Route	6	Low Boy / 55x8x11	Excavator, Forklift, Morooka, UTV / 60,000	Pilot Car	None	Speeds will be maintained at 15 mph or less to suppress dust.
	NV Access Route Aspen Access Route	1	3-Axle Tanker / 18x8x10	Propane / 32,000	Pilot Car	None	Speeds will be maintained at 15 mph or less to suppress dust.
	NV Access RouteCA Access RouteAspen Access Route	320	Pick-up / SUV	Personnel	See Traffic Management Plan (Attachment A)	None	Speeds will be maintained at 15 mph (CA Access Route and Aspen Access Route) or 25 mph (NV Access Route) or less to suppress dust.
	NV Access Route CA Access Route Aspen Access Route	4	2-Axle Sani-Hut Truck	Sanitation Maintenance	None	None	Speeds will be maintained at 15 mph (CA Access Route and Aspen Access Route) or 25 mph (NV Access Route) or less to suppress dust.
	NV Access Route	1	3-Axle Tanker / 32x8x10	Diesel / 33,000	Pilot Car	None	Speeds will be maintained at 15 mph or less to suppress dust.
	NV Access Route	4	Water Tanker Truck	Potable Water / 33,300	Pilot Car	None	Speeds will be maintained at 15 mph or less to suppress dust.
	NV Access Route	5	3-Axle Roll-off Truck / 40x8x10	Full roll-off bins	Pilot Car	None	Speeds will be maintained at 15 mph or less to suppress dust.
	NV Access Route	3	Tractor Trailer / 40x8x11	Job Trailer / 25,000	Pilot Car	None	Speeds will be maintained at 15 mph or less to suppress dust.
	CA Access Route	4	2-Axle Garbage Truck	6 Yard Garbage Bin	None	None	Speeds will be maintained at 15 mph or less to suppress dust.
November	NV Access Route CA Access Route Aspen Access Route	3	2-Axle Sani-Hut Truck	Sanitation Maintenance	None	None	Speeds will be maintained at 15 mph (CA Access Route and Aspen Access Route) or 25 mph (NV Access Route) or less to suppress dust.
	NV Access Route Aspen Access Route	1	2-Axle Stake Bed Truck / 37x8x10	Sanitation Equipment	Pilot Car	None	Speeds will be maintained at 15 mph or less to suppress dust.
	NV Access Route	1	3-Axle Tanker / 32x8x10	Diesel / 33,000	Pilot Car	None	Speeds will be maintained at 15 mph or less to suppress dust.
	NV Access Route CA Access Route Aspen Access Route	160	Pick-up / SUV	Personnel	See Traffic Management Plan (Attachment A)	None	Speeds will be maintained at 15 mph (CA Access Route and Aspen Access Route) or 25 mph (NV Access Route) or less to suppress dust.

TABLE 1
Estimate of Industrial Traffic and Proposed Maintenance

Note:
[1] Specific maintenance to accommodate traffic (e.g., grading/resurfacing, improve roadbed, clear culverts, etc.

Abbreviations:
ft = feet
(LxWxH) = length x width x height
lbs = pounds
mph = mile per hour

TABLE 2
Primary Atlantic Richfield Project Workforce[1]

Atlantic Richfield Personnel	
Anthony Brown - Project Manager, Mining	
Ron Halsey - Operations Manager US Mining, Canada & Alaska	
Ray Vose - West Region HSSE Advisor	
Contractors	
Amec Foster Wheeler	ER Mancini & Associates
Broadbent and Associates, Inc.	USA Environment
Copper Environmental Consulting	
EnSci, Inc.	
Subcontractors	
ABC Fire and Cylinder Service	Joe Benigno's Tree Service, Inc.
Adler Tank Rentals	Lake Tahoe Adventures
Ahern Rentals	Tri-Signal
Amacker Trucking and Supply	Modular Space Corporation
Briggs Electric	Norcal Geophysical Consultants
California Tank Lines	Novalynx Corporation
Campora Propane Service	Pacific Power Generation
BC2 Environmental	Ron Menesini Petroleum Products
Cummins Pacific	Sani-Hut
Desert Engineering	Statewide Traffic Safety and Signs
Douglas Disposal	Summit Engineering Corporation
EHS Documents	Syblon Reid Contractors
Pape Machinery	H_2E
Ponder Environmental	Western Electrical Services, Inc.

Note:
[1] The primary Atlantic Richfield project workforce anticipated to visit the Leviathan Mine Site in 2017 is provided; however, the Workforce is not limited to the above personnel, contractors, and subcontractors.

TABLE 3
Road Maintenance Activities

Road Maintenance Activity[1]	Road Maintenance Criteria[1]	Specific Road Maintenance Activity to be Performed[1]	BMPs Utilized During Road Maintenance[1,2]
1. Snow Removal[3]	A. Prior to road use, greater than 2 inches of snow accumulation is present on the road surface.	Remove snow from entire road surface width including turnouts. Snow must not be removed to the road surface. A minimum 2-inch depth of snow must be left on the road surface to protect the roadway. Road banks and backslopes will not be undercut nor will gravel or other selected surfacing material be bladed off the roadway surface.	Spill kits and absorbent material will be kept in each vehicle. Snow removal will be completed in a manner which prevents the entrainment of sediment with snow and surface water bodies.
	B. Prior to road use, snow slides, earth slides, fallen timber, or boulders are found to obstruct the normal road surface width.	Remove snow slides as described in Road Maintenance Activity 1A. Earthen slides, fallen timber, and boulders will be removed from the road surface using the appropriate equipment and will be deposited away from stream channels and culverts. Removal of obstructions found in the roadway which require additional planning and safety considerations will be evaluated on a case by case basis.	Spill kits and absorbent material will be kept in each vehicle. Snow removal will be completed in a manner which prevents the entrainment of sediment with snow and surface water bodies.
	C. Snow, ice, or debris is obstructing drainage ditches and culverts.	Drainage ditches and culverts will be cleared and obstructions removed so that the drainage system will function efficiently at all times. Rip-rap components at outlets will be maintained to prevent/control erosion.	Spill kits and absorbent material will be kept in each vehicle. Removal of obstructions will be completed in a manner which prevents the entrainment of sediment with snow and surface water bodies.
2. Road Grading and Resurfacing	A. Original roadway surface and shoulders become rutted or depressed.	Equipment will be used to grade and re-shape the roadway and shoulders to its original condition. Weed-free aggregate may be placed in low spots to prevent water ponding.	Spill kits and absorbent material will be kept in each vehicle. Grading and re-shaping will be completed in a manner which prevents the discharge of sediment into surface water bodies. Vehicles will be equipped with fire extinguishers and shovels for fire prevention.

TABLE 3
Road Maintenance Activities

Road Maintenance Activity[1]	Road Maintenance Criteria[1]	Specific Road Maintenance Activity to be Performed[1]	BMPs Utilized During Road Maintenance[1,2]
2. Road Grading and Resurfacing (cont.)	B. Original roadway surface and shoulders contain ruts 3-inches deep or more.	Equipment will be used to flat blade the ruts before pulling ditches. If needed, weed-free aggregate may be placed to achieve the required grade.	Spill kits and absorbent material will be kept in each vehicle. Grading and re-shaping will be completed in a manner which prevents the discharge of sediment into surface water bodies. Vehicles will be equipped with fire extinguishers, axes, and shovels for fire prevention.
	C. Original roadway surface and shoulders contain sharp rock edges.	Equipment will be used to cover sharp rock edges with weed-free aggregate. Large protruding rocks will be removed if necessary and depressions will be filled and compacted with weed-free aggregate.	Spill kits and absorbent material will be kept in each vehicle. Grading and re-shaping will be completed in a manner which prevents the discharge of sediment into surface water bodies. Vehicles will be equipped with fire extinguishers and shovels for fire prevention.
	D. Original roadway crown and superelevation is reduced or modified.	Equipment will be used to grade, re-shape, and blade the road surface to its original crown and superelevation. Blading will proceed in an orderly fashion by successive passes with a grader parallel to the road centerline, progressing from the lower side to the upper side of the roadway and back across. Blading will maintain the roadway width as existing. All berms, large loose rocks, sloughed material and debris will be removed from the road surface and shoulders which could interfere with ditch flow and culvert performance.	Spill kits and absorbent material will be kept in each vehicle. Grading and re-shaping will be completed in a manner which prevents the discharge of sediment into surface water bodies. Sediment dislodged while blading roadways will not be wasted over shoulders of roads. Such sediments will be incorporated in plating of the existing roadbed or hauled off site. Vehicles will be equipped with fire extinguishers and shovels for fire prevention.
3. Dust Suppression	A. A maintenance application of Envirotac II® is required per the 2016 Dust Suppression Plan.	Envirotac II® will be applied to the road surface. Application should consist of a mixture of 1 part Envirotac II® and 4 parts water. Envirotac II® will be applied by use of a water truck.	Spill kits and absorbent material will be kept in each vehicle. Envirotac II® application will be completed in a manner which prevents the discharge of material into surface water bodies. Vehicles will be equipped with fire extinguishers and shovels for fire prevention.

TABLE 3
Road Maintenance Activities

Road Maintenance Activity[1]	Road Maintenance Criteria[1]	Specific Road Maintenance Activity to be Performed[1]	BMPs Utilized During Road Maintenance[1,2]
4. Culvert and Catch Basin Clearing	A. The upper or lower end of an existing culvert has accumulated sediment, limbs, brush, or other debris within 2 feet of the culvert inside the drainage ditch and within 5 feet on backslopes.	Culverts will be cleaned out to the minimum required setback, as well as the inside of the culvert, to provide unobstructed flow to and from the culvert. Native vegetation should only be removed from a drainage ditch when it interferes with water flow.	Spill kits and absorbent material will be kept in each vehicle. Clearing of sediment from ditches and culverts will be completed in a manner which prevents the discharge of sediment into surface water bodies. Vehicles will be equipped with fire extinguishers and shovels for fire prevention.
	B. Catch basins contain sediment, debris, or other obstructions above the flow line of culverts or above the floor of concrete or masonry catch basins.	Catch basins and culverts will be cleaned of excess material above the flow line of culverts or above the floor of concrete or masonry catch basins. The discharge end of culverts will be cleared of material to the elevation of culvert outlets for a distance of 5 feet. Native vegetation should only be removed from a drainage ditch when it interferes with water flow.	Spill kits and absorbent material will be kept in each vehicle. Clearing of sediment from ditches and culverts will be completed in a manner which prevents the discharge of sediment into surface water bodies. Vehicles will be equipped with fire extinguishers and shovels for fire prevention.
5. Clearing Drainage Ditches	A. The flow of water is obstructed in drainage ditches.	All roadway ditches, lead-off ditches from culverts or cut sections, and lead-in ditches will be cleaned of material which obstructs the flow of water. All ditches will be graded to match the original line, grade, and cross section of the ditch. Native vegetation should only be removed from a drainage ditch when it interferes with water flow. All ditches will not be cut deeper than 18 inches and will not exceed a 2:1 slope from the road shoulder.	Spill kits and absorbent material will be kept in each vehicle. Clearing of sediment from ditches and culverts will be completed in a manner which prevents the discharge of sediment into surface water bodies. Vehicles will be equipped with fire extinguishers and shovels for fire prevention.

TABLE 3
Road Maintenance Activities

Road Maintenance Activity[1]	Road Maintenance Criteria[1]	Specific Road Maintenance Activity to be Performed[1]	BMPs Utilized During Road Maintenance[1,2]
6. Grading Drivable Dips	A. Drivable dips do not adequately drain water from the roadway.	Dips will be graded to ensure water is adequately drained from the roadway and low spots are filled and compacted with weed-free aggregate. The lower end of dips will be shaped to adequately drain water away from the roadway.	Spill kits and absorbent material will be kept in each vehicle. Clearing of sediment from ditches and culverts will be completed in a manner which prevents the discharge of sediment into surface water bodies. Vehicles will be equipped with fire extinguishers and shovels for fire prevention.
	B. Drivable dips become damaged and hazardous for safe vehicular traffic.	Dips will be graded to match the original line, grade, and cross section. Dips will be graded for drainage as described in Road Maintenance Activity 5A.	Spill kits and absorbent material will be kept in each vehicle. Clearing of sediment from ditches and culverts will be completed in a manner which prevents the discharge of sediment into surface water bodies. Vehicles will be equipped with fire extinguishers and shovels for fire prevention.
7. Trimming of Excess Vegetation	A. Trees, limbs, brush, and other obstructions are within 3 feet of the roadway or are obstructing the driver's sight distance.	Trees, limbs, brush, and other obstructions will be trimmed or removed out to the required set back and so that the driver's sight distance is not obstructed. Limbs will be pruned next to the trunk of trees with the exception of overhanging limbs. Removed vegetation may be scattered outside the roadway and ditches. Burning is prohibited.	Spill kits and absorbent material will be kept in each vehicle. Clearing of vegetation and other obstructions will be completed in a manner which prevents the discharge of sediment into surface water bodies. Vehicles will be equipped with fire extinguishers and shovels for fire prevention.

Notes:

[1] Developed in accordance with the Leviathan Mine Road Maintenance Resurfacing Specifications. This table does not substitute the specifications detailed in the Leviathan Mine Road Maintenance and Resurfacing Specifications.

[2] During all road maintenance activities BMPs will be employed to prevent the discharge of sediment to nearby streams.

[3] All items of snow removal will be done concurrently as necessary to ensure safe, efficient transportation.

Abbreviations:

BMPs = best management practices

2017 ANNUAL ROAD OPERATING PLAN

ATTACHMENT A:
TRAFFIC MANAGEMENT PLAN

Leviathan Mine
Alpine County, California

April 2017

2017 TRAFFIC MANAGEMENT PLAN
REVISION 11

Leviathan Mine
Alpine County, California

Prepared for:
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April 2017

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1.0 INTRODUCTION

On behalf of Atlantic Richfield Company (Atlantic Richfield), Copper Environmental Consulting (CEC) has prepared this Traffic Management Plan for all vehicles, including medium (delivery) to heavy-duty (tractor-trailer) trucks accessing the Leviathan Mine Site (site) located in Alpine County, California (CA), in connection with Atlantic Richfield project activities. This Traffic Management Plan sets forth the guidelines to be employed and maintained by the Atlantic Richfield project workforce (all Atlantic Richfield employees, contractors, and subcontractors working at the site) throughout the project. This document aims to ensure that personnel travel and the shipment of materials and goods to and from the site associated with Atlantic Richfield project activities can be performed safely while minimizing impact to the surrounding community, including public use of the roads.

1.1 Health and Safety Considerations

Atlantic Richfield regards the health and safety of their project workforce, the public, the surrounding community, and the environment as the highest priority on any project.

The primary safety document for implementation of all work at the site will be the *Leviathan Mine Site Health, Safety, Security, and Environment Program Document* (HSSE Program Document)[1]. In addition, all contractors working at the site are required to have their own Task Specific Health and Safety Plan (TSHASP) prepared consistent with 29 Code of Federal Regulations (CFR) 1910.120 and California Code of Regulations (CCR) Title 8, Section 5192. The HSSE Program Document and TSHASPs are the primary safety documents for implementation of all work conducted at the site by contractors and subcontractors. These documents will be referred to for all general safety issues involving implementation of the scope of work described herein with this Traffic Management Plan.

In accordance with the HSSE Program Document, the following subsections describe the driving safety requirements and mandatory requirements for vehicles and personnel for the Atlantic Richfield project workforce.

1.1.1 *Driving Safety*

All categories of vehicle must not be operated unless:

- Vehicle is fit for purpose, inspected and confirmed to be in safe working order;

[1] The HSSE Program Document and TSHAPs, along with any revisions, will be available for review on-site in the Administration Office Trailer.

- Number of passengers does not exceed manufacturer's design specification for the vehicle;
- Loads are secure and do not exceed manufacturer's design specifications or legal limits for the vehicle;
- All items within the vehicle are properly stowed and secure, including smaller items such as tool boxes, supply boxes, loose papers, etc.;
- Three point contact seat belts are installed and worn by occupants; and
- Safety helmets are worn by riders and passengers of snow-mobiles and similar types of vehicles and as designated by manufacturers' recommendations and/or applicable law.

Drivers are not authorized to operate the vehicle unless:

- They are trained, certified (Including light vehicle operator permit) and medically fit to operate the class of vehicle;
- They are not under the influence of alcohol or drugs, and are not suffering from fatigue; and
- They do not use mobile phones or radios while driving (best practice is to switch off all mobile phones when driving).

1.1.2 *Mandatory Requirements for Vehicles and Personnel*

In addition to the above health and safety considerations, the following are mandatory requirements that are to be followed for commercial hauling and personnel transport vehicles accessing the site in connection with Atlantic Richfield project activities:

- Light Vehicle Operator Permit – all persons driving to the site are required to have completed the site specific hands on Driving Hazard/Risk and Mitigation Review and obtain a Light Vehicle Operator permit. This permit must be maintained in the operator's vehicle at all times.
- Defensive Driver Training – all subcontractors driving on Atlantic Richfield business are required to have completed a defensive driver training course with hands on driver evaluation within the last three years or have a current Commercial Driver's License (CDL);
- Road Use Permit – all vehicles are required to carry a copy of page one of the signed United States Department of Agriculture (USDA) Forest Service Road Use Permit (Appendix A);
- Review and completion of "What to Know Before You Go" training module prior to visiting the site for the first time;
- Site Visitors – non-daily workers are required to notify the site regarding travel plans and expected time of arrival;

- Limited Dust Policy – regardless of the posted recommended speeds all vehicles are required to be respectful of neighbors, off-road enthusiasts, hikers, on-site personnel, etc. and minimize vehicle dust generation;
- Invasive Species Policy – all vehicles and heavy equipment are required to prevent the introduction of noxious/invasive weeds within the site. Measures must include inspection of vehicles and heavy equipment that have been in an off-site infested location and off-site cleaning, as necessary, if significant mud and debris are observed on the vehicles or heavy equipment (i.e. on the wheels covering the tread, in the wheel-wells, under the carriage body, etc.);
- Speed Policy – although the posted speeds are only recommended, all vehicles are required to keep speed below the posted speed and only drive as fast as conditions safely allow;
- Lights on Policy – all vehicles are required to drive with their headlights on while traveling to, from, and on the site;
- Chocking Policy – all vehicles are required to be chocked on the down gradient side of the passenger side rear tire following parking and setting the emergency brake of the vehicle. The purpose of this policy is to ensure personnel conduct a 360 degree safety walk around the vehicle prior to moving the vehicle; and
- Travel Time Restrictions – site personnel traveling to and from the site or the Minden/Gardnerville area, requiring transit on mountainous two lane roads, undivided rural highways, and/or dirt roads should plan their travel so that they do not leave their place of origin (i.e. house, office, hotel, site, etc.) more than one-half (1/2) hour before sunrise or drive on such a road more than 1/2 hour after sunset prior to reaching their destination as in accordance with the Revised Leviathan Mine Driving Policy (Appendix D).

In addition to these mandatory requirements, morning site safety briefings will be held every day. The morning site safety briefings will review jobs planned for that day, changes in operations, expected deliveries, visitors, road traffic, expected weather, and any lessons learned or safety observations made from the previous day's work.

Additional and applicable work practices needed to ensure safe use of the roads are included in each contractor's TSHASP, including the driving safety procedures. These procedures are consistent with Remediation Management's (RM's) Defined Practice for Driving Safety.

2.0 SITE LOCATION AND ACCESS

The site is located in an unpopulated portion of Alpine County, CA, in the eastern portion of the Sierra Nevada approximately 20 miles southeast of the southern shore of Lake Tahoe, CA, five miles west of the CA-Nevada (NV) border, and approximately six miles east of the town of Markleeville, CA. The site is situated at an elevation of approximately 7,000-feet above mean sea level (msl).

Access to the site is provided by Leviathan Mine Road (also known as Forest Service Road 10052), which is an unpaved road that connects to CA State Route 89 (SR 89) over Monitor Pass to United States Highway 395 (US 395) in the Double Spring Flat area between Gardnerville, NV, and Topaz Lake, NV (Figure 1). From the site, Leviathan Mine Road extends approximately nine miles east to US 395. This section of the road is the NV Access Route. The CA Access Route portion of Leviathan Mine Road extends west from the site to SR 89, approximately three miles. Leviathan Mine Road skirts the eastern boundary of the site with access through the site via Forest Service Road 10348. Access through the site is controlled by gates that are kept closed and locked to prevent unauthorized access (Figure 2).

The elevation of Leviathan Mine Road varies from approximately 5,800 feet above msl to 8,000 feet above msl with potential inherent extreme variations in weather. Fog and inclement weather may be encountered during the course of the work, including accumulation of ice and snow from precipitation. In normal years, wheeled-vehicle access is limited to approximately early spring through late fall, with wheeled-vehicle travel discouraged during heavy rains or wet conditions due to potential road hazards.

Leviathan Mine Road is a public access road (except for the gated on-site access roads) and is frequented by recreational users such as campers, off-road 4x4 vehicles, all-terrain vehicles (ATVs), bikers, hikers, and hunters. In addition, wildlife may also be encountered on the roadway during the course of the project.

A summary of the access routes is provided below.

2.1 Nevada Access Route Conditions

Access to the site from US 395 in NV is via approximately 10.5 miles of single lane unpaved road (Figure 3, including the 1.5 miles into the Aspen Seep Bioreactor [ASB] Treatment System). Some sections of this access route are very rough and rocky with unguarded curves that have steep embankments. In general, the NV Access Route is not as steep as the CA Access Route, and the turns are broader. The NV Access Route varies in width with limited shoulder widths. However, a few widened areas exist for relief to get outside of the main lane for passing (see Control Points; Figure 3). One tight hair-pin turn is located on a steep grade just after the road crosses Leviathan Creek on the way into the site (see Area of Concern 'A'; Figure 3). This turn is the only paved section of the NV Access Route.

The recommended maximum speed on NV Access Route outside of the locked site access gates, with exception of the section of road in front of the residences, is posted as 25 miles per hour (mph). The section in front of the residences is posted as 15 mph. Regardless of the posted speed, all vehicles are cautioned to only travel as fast as conditions safely allow.

The section of the road outside of the locked site access gates may be used by the public. Wildlife, hikers, bikers, and other vehicles may be encountered on the roadway during the course of the project. Rockslides, debris slides, tree falls, and other road hazards are also possible. Additionally, the NV Access Route is subject to travel by tractor-trailers and large trucks with limited visibility delivering equipment and construction materials to the site. Special details regarding large trucks will be discussed in other sections of this Traffic Management Plan.

2.2 California Access Route Conditions

Access to the site from SR 89 in California is via approximately three miles of single lane gravel road (Figure 4). In general, the CA Access Route is steeper than the NV Access Route and has tighter "S" turns. The CA Access Route varies in width with limited shoulder widths and unguarded curves that have steep embankments; however, a few widened areas exist for relief to get outside of the main lane for passing (see Control Points; Figure 4). Two sections of the CA Access Route are paved, the first being a short section with a sharp curve and steep grade located just off SR 89 and the second being a fairly straight section on a steep grade where the road crosses the summit (see Paved Areas; Figure 4).

The recommended maximum speed on the CA Access Route outside of the locked site access gates is posted as 15 mph. Regardless of the posted speed, all vehicles are cautioned to only travel as fast as conditions safely allow. This section of road may be used by the public. Wildlife, hikers, bikers, and other vehicles may be encountered on the roadway during the course of the project. Rockslides, debris slides, tree falls, and other road hazards are also possible. Occasionally, the CA Access Route is subject to travel by tractor-trailers and large trucks with limited visibility.

2.3 On-Site Access Road Conditions

This section discusses the road conditions in the areas located within the locked site access gates that are utilized to access the ASB Treatment System and the Pond 4 area as well as the Lahontan Regional Water Quality Control Board (LRWQCB) areas of responsibility.

2.3.1 *Aspen Access Road*

Access to the ASB Treatment System inside the locked access gate is via a single lane gravel road (Figures 2 and 5). Sections of the road are relatively steep and narrow especially the stretch of road from the "upper emergency shelter area" down to the ASB Treatment System. During the winter months, the road becomes impassible to most traffic due to snow accumulation. During the spring, the road may become muddy, slippery, and rutted. The recommended maximum speed on the Aspen Access Road is 15 mph. This access road is closed to public access year round.

Truck traffic to the ASB Treatment System is typically only possible during approximately early spring to late fall months and is highly dependent upon the weather. Except in case of an emergency, no truck traffic will be allowed to the ASB Treatment System under muddy or other adverse road conditions.

2.3.2 *Pond 4 Access Road*

Access to Pond 4 between the CA access gate and the NV access gate is via a single lane gravel road (Figures 2 and 5). Immediately inside the CA access gate, an approximately 1,500-foot section of the Pond 4 Access Road is paved. Other sections of the road are very steep and may be difficult for trucks to negotiate, especially the section between Pond 4 and the paved section inside the CA access gate (Area of Concern B; Figure 5). Continuous use of this road causes severe "wash boarding," and may prohibit large vehicles and small trucks from exiting under their own power. Additionally, this portion of the road becomes rutted after spring snowmelt or heavy rain storms pass over the site. The recommended maximum speed on the Pond 4 Access Road is 15 mph. This access route is closed to public access year round.

2.4 Road Maintenance

Atlantic Richfield contractors will maintain the Leviathan Mine Road by grading as necessary to maintain safe travel to and from the site. This may include repairing potholes, ruts, wash boarding, and general road repair. Road maintenance activities will be performed commensurate with Atlantic Richfield's use and in accordance with Appendix B (Leviathan Mine Road Maintenance and Resurfacing Specifications) of the USDA Forest Service Road Use Permit (Appendix A). Road grading may need to be supplemented by placement of weed-free aggregate road base to improve traction in steep areas such as the section of the site access road between Pond 4 and the CA access gate. Only weed-free erosion control materials (including straw) and weed-free aggregate base material will be used when performing road maintenance. Road grading may also be necessary to improve travel over and cover severely rocky sections, as well as protect the integrity of the road.

The requirement of a daily Ground Disturbance Permit for road grading activities will be waived due to the remote nature of the site. Waiver of this requirement is supported

by the fact that One-Call, Underground Service Alert (USA), was contacted throughout the 2009 work season and it was confirmed that there are no known underground utilities on the Leviathan Mine Road (Forest Service Road 10052). It was also confirmed that the Leviathan Mine Road has been repeatedly graded annually since the 2008 work season without encountering any underground utilities and with no ground disturbance incidents.

Prior to road grading activities, Atlantic Richfield contractors will notify USA to verify that no new utilities have been installed. Atlantic Richfield will continue to renew the USA notification every two weeks during road grading activities. If conditions of underground facilities change, a Ground Disturbance Permit will be completed prior to each day's grading activities.

On-site road maintenance activities will be subject to LRWQCB approval. The LRWQCB will be notified of severe road deterioration issues, and if need be, a request for roadway repairs will be made through Atlantic Richfield to the LRWQCB. Additionally, a Ground Disturbance Permit will be completed when road grading activities are scheduled to take place on site and in an area with known underground utilities.

2.5 Changes in Road Conditions

Road conditions will be monitored by the Atlantic Richfield project workforce during travel to and from the site for daily field activities. In addition to routine monitoring of road conditions for light vehicular traffic, monitoring will be increased during times of scheduled truck traffic to identify areas where the road surface may be degrading or changing conditions due to inclement weather (i.e., erosion, muddy conditions, ice cover, and snow). If road conditions indicate a hazardous or unsafe condition exists, truck traffic to and from the site will be postponed until road conditions improve (i.e., after a storm, large truck traffic will be delayed until snow/ice has melted and wet muddy sections have dried out) or traffic can be managed to avoid the unsafe condition. Weather forecasts will be monitored daily and integrated into site traffic management decisions.

3.0 BACKGROUND

The following sections describe the background of the Traffic Management Plan including a summary of the 2008 (*Leviathan Mine California Access Road Evaluation Report*) and a brief history of the Traffic Management Plan.

3.1 California Access Road Evaluation Report

At the request of Atlantic Richfield, Summit Engineering Corporation of Reno, NV (Summit) was hired to evaluate the CA Access Route from SR 89 to Pond 4 for safe vehicular travel (Figure 4). The evaluation began in October 2007, and concentrated on three main objectives:

- determination of maximum length of vehicle capable of negotiating the road;
- determination of maximum height of a vehicle capable of negotiating the road; and
- recommended speed for traffic on the road.

The results of this analysis were presented in the *Leviathan Mine California Access Road Evaluation Report* prepared by Summit in May 2008 (Summit Report)[2]. The following subsections describe the methodology and the recommendations based on the evaluation objectives.

3.1.1 *Maximum Vehicle Length*

The maximum length of a vehicle capable of negotiating the CA Access Route was determined by measuring the horizontal limits (referred to as the edge of the traveled way [EOT] in the Summit Report) and existing ground topography using aerial photography, photogrammetric interpretation, and field surveys along the entire length of the CA Access Route. As a result, in general, the maximum length of a vehicle that can safely negotiate the CA Access Route is limited by the restrictions of the EOT. For example, longer vehicles and vehicles with trailers need wider travel ways to negotiate turns safely.

The report states that vehicles should have a horizontal clearance of at least 1 to 2 feet on each side of the EOT for steering corrections. Because the road is unpaved, the EOT is dynamic in nature and is affected by routine maintenance such as resurfacing or grading. It was concluded by Summit that the EOT along the CA Access Route is subjective and may vary by several feet depending on the observer and time of the observation.

[2] Summit™ Engineering Corporation, 2008, *Leviathan Mine California Access Road Evaluation Report*: prepared for Broadbent and Associates, Inc., February and May.

As the CA Access Route was reviewed, nine critical curves were identified along the three miles of road. Modeling of three different sized vehicles[3] using turning and tracking simulation software over the nine critical curves was performed to determine if any of the vehicles modeled had horizontal clearance of at least 1 to 2 feet on each side of the EOT.

The Summit Report cautioned that there was insufficient road width on two of the nine critical curves for the single-unit truck, based on the EOT defined by Summit at the time of their survey. However, there has since been modifications to these curves (i.e., widening the road at these locations). The Summit Report did not recommend a maximum length vehicle for the CA Access Route.

In September 2010, Atlantic Richfield submitted the *Supplemental 2010 California Access Route Maintenance Plan*[4] to the USDA Forest Service. The Supplemental Maintenance Plan provided the details for improving water management controls and enhancing two-way traffic safety along Leviathan Mine Road on an approximate 0.7-mile stretch of roadway, measured from approximately 1.8 miles from the intersection with SR 89 to approximately 2.5 miles from the intersection with SR 89.

Following USDA Forest Service approval of the *Supplemental 2010 California Access Route Maintenance Plan*, in-slope drainage ditches were filled with imported weed-free aggregate base rock to out-slope the road prism. Existing drainage swales across the roadway were enhanced and rip-rap was placed along the edges of existing drainage swales where swales intersect the roadway. On average, approximately 7 feet of road width was added to the road prism by filling the in-slope drainage ditch. The maximum vehicle length has not been re-evaluated since this work was completed.

3.1.2 *Maximum Vehicle Height*

Visual inspection of the CA Access Route was conducted to determine the occurrence of vertical obstructions. The only vertical obstruction on the road was tree limbs. The field crew measured distances of the tree limbs above the road surface to determine the maximum height of a vehicle and cargo that would pass under all of the obstructions. It was determined that the maximum height of a vehicle that will safely pass under all obstructions was 11 feet. Subsequent to issuance of the report, trees and shrubbery growing adjacent to the road were trimmed in 2008 and are trimmed as necessary as part of road maintenance. The maximum vehicle height has not been revaluated.

[3] Vehicles modeled included two standard AASHTO vehicles (single-unit truck and intermediate semitrailer) and a user defined transport truck (single-unit truck that is longer than standard single-unit truck but shorter than semitrailer).

[4] Atlantic Richfield, 2010, Supplemental 2010 California Access Route Maintenance Plan, prepared by AMEC Geomatrix, Inc., September.

3.1.3 *Recommended Speed*

Horizontal curves in the road were related to the design speed set forth in the American Association of State Highway and Transportation Officials (AASHTO) Guidelines for Geometric Design of Very Low-Volume Local Roads[5]. Additionally, existing horizontal alignment, existing vertical alignment, and existing available sight distance were also used to determine a recommended speed for the CA Access Route.

The Summit Report recommended a maximum speed of 15 mph for traffic on the road. The Summit Report also stated the use of one-way traffic controls is necessary for safe travel due to the limited sight distance, narrow road width, and the presence of roadside hazards such as trees and steep down slopes. These controls are discussed in Section 5.

3.2 Traffic Management Plan Background

The Traffic Management Plan was first initiated in June of 2007 due to the large amount of construction, including equipment and materials delivery, as well as a large volume of scheduled work and several incidents on the site access roads. Similarly, high-volume traffic occurred throughout the 2008 and 2009 field seasons due to numerous construction projects with high associated delivery volumes that occurred at the site throughout each day. During these three years, the Traffic Management Plan utilized the procedures outlined in this document including the use of three to four traffic control personnel (flaggers) stationed along the CA Access Route (Figure 4, Control Points 8, 9, 10, and 11) during the eight to ten busiest hours of each work day.

In addition, mirrors were first installed as a temporary measure along the CA Access Route in 2007 and again in 2009 to evaluate their effectiveness in assisting drivers to detect oncoming traffic at blind corners. The use of the mirrors greatly increased visibility around the blind corners allowing drivers to see and react to on-coming traffic. Mirror installation requires mounting on a post and utilizing durable mounting brackets capable of withstanding severe weather including high winds and heavy rain/snow.

Traffic hazards associated with travel on the CA Access Route as well as other site access roads will largely be mitigated through the use of administrative controls. The following sections of this Traffic Management Plan present the administrative controls and mitigation measures to be employed on the site access roads.

[5] United States Department of Agriculture - Forest Service, 1987, Road Preconstruction Handbook, Publication FSH 77096.56. May.

4.0 Traffic Management and Communication of Trucks and Site Deliveries

This section describes the traffic management controls that will be implemented for the site access roads such as: limits on truck type and size (Section 4.1) and requirements for truck drivers (Section 4.2). Additionally, this section presents requirements for traffic management scheduling and communication (Section 4.3).

4.1 Truck Type and Size

The site Administrator/Coordinator will request that vendors limit the size of trucks delivering to the site to the extent possible and will inform vendors of road conditions. Due to road conditions and the relatively tight "S" turns on the CA Access Route, tractor-trailers and single-unit trucks greater than 30 feet in overall length will be limited to access the site only via the NV Access Route. Trucks with a length greater than 30 feet may be permitted to enter the site using the CA Access Route only if granted prior authorization by the CEC Project Manager, Broadbent Project Manager, or their designees in collaboration with Atlantic Richfield Project Oversight personnel. The decision to allow trucks greater than 30 feet in length overall on the CA Access Route will be made on a case-by-case basis and may require that additional protocols be put in place. Any allowances and changes will be documented via appropriate Management of Change (MoC) documentation.

Tractor-trailers will be allowed to off-load equipment at either of the two designated staging areas along the CA Access Route. These locations are shown in Figure 4 (Loading/Unloading Areas A and B). Loading/Unloading Area A is 0.1 miles prior to the turn onto Leviathan Mine Road off of SR 89 and Loading/Unloading Area B is at the crest of the access road. Tractor-trailers dropping equipment at Loading/Unloading Area B (Figure 4) must either do so when traffic control is in place or must be escorted by a pilot car to and from the intersection of SR 89 and Leviathan Mine Road to the loading/unloading area. Depending on the materials/equipment being transported, loads will be transferred to smaller trucks for site delivery. Wheeled equipment that is delivered will be driven to the site under its own power. Wheeled equipment mobilizing to the site under its own power will be escorted by a pilot vehicle. Depending upon the scheduled traffic for the day, site personnel may be available to assist in traffic control. Use of traffic control flaggers and pilot vehicles is described in detail in Section 5.1. One-way vehicle traffic control on the CA Access Route is described in Section 5.1.3.

Tractor-trailer access via the CA Access Route may be revisited in the future if additional roadway improvements are made, and following evaluation of the improvements to road width completed in the fall of 2010. Exceptions to the above guidelines can be made as long as a hazard review is completed and a MoC (refer to the HSSE Program Document) is completed and authorized.

Tractor-trailers and large trucks with limited visibility accessing via the NV Access Route will be intercepted at the intersection of US 395 and Leviathan Mine Road and will be escorted to and from the site by a pilot vehicle. Depending upon the scheduled traffic for the day, traffic control flaggers may be used to assist in traffic control on the NV Access Route. Use of traffic control flaggers and pilot vehicles is described in detail in Section 5.1.

4.2 Truck Drivers

Prior to being allowed to drive to the site, a competent designee of the Atlantic Richfield workforce will evaluate the experience level of the truck driver and request only safe, experienced personnel. This will be done through the use of the Tractor-Trailer (18-Wheel or Semi) Type Delivery Trucks Traveling to the site - Leviathan Site Specific Permit, as described in Section 5.1.2. Trucking companies that frequently provide delivery or pickup services will be required to use safe, experienced drivers. Drivers who have not been to the site before will be intercepted at a predetermined location and may be driven into the site in a light-duty vehicle to investigate and assess the nature of the road and the current conditions. All first time truck drivers on the NV Access Route will be stopped at the base of the hill prior to the asphalted hair-pin turn, and the driver taken to the turn in the pilot vehicle so that the driver can view the turn and assess how to navigate the turn in person prior to being allowed to proceed. Drivers who are not confident, or who are determined not to be qualified to safely drive their truck to the site, will be redirected so that their load can be transported to the site using qualified and competent drivers with alternate vehicles or other transport methods.

One alternate option may be to off-load trucks at Ahern Rentals or another location in Gardnerville or Minden, NV, and have certain specified subcontracted personnel, who are trained, competent, and familiar with the road and have previously navigated it safely, to make deliveries.

4.3 Access Scheduling and Notification

Daily site personnel are required to notify the Site Administrator/Coordinator of any changes in their daily schedule or if for whatever reason they will not be on site for the morning safety briefing. Occasional site workers, visitors, and regulators accessing the site and all vendors and subcontractors delivering or receiving materials at the site will be required to provide prior notice (24 hours) to the Site Administrator/Coordinator and obtain information on current road conditions, traffic patterns, low light travel time restrictions, traffic levels (i.e., other deliveries), access route (i.e., via the CA Access Route or the NV Access Route) and weather conditions.

If truck deliveries cannot be made due to weather or road conditions, arrangements will be made for the materials to either be delivered on a different date or for the truck to be off-loaded at Ahern Rentals or another location in Gardnerville or Minden, NV. When conditions are considered safe for travel, the materials will be reloaded and transported to the site by Ahern Rentals, or another competent carrier.

4.3.1 *Site Access Coordination*

Access for the shipment of materials and goods to and from the site should be coordinated through the Site Administrator/Coordinator. Based on road conditions, type of truck accessing the site, and scheduled traffic and other simultaneous operations, instruction will be provided on whether access should be via the CA Access Route or the NV Access Route. These factors will also determine whether or not a pilot car is needed and coordination of the time and place to accept the delivery. It is required that site access coordination be made through one of the following contacts:

Michelle Souza, Site Administrator/Coordinator
Skype Phone: (530) 554-2599
Email: msouza@broadbentinc.com

Mike Johnson, CEC Project Manager
Cell: 406-560-5906
Email: mike.johnson@copperenv.com

Jeremy Boucher, Broadbent and Associates Project Manager
Cell: 775-303-7153
Email: jboucher@broadbentinc.com

Site management personnel can also be reached at the following numbers:
Skype Phone
(530) 554-2599

4.3.2 *Simultaneous Operations*

The Site Operations Supervisor, Site Administrator/Coordinator, CEC Project Manager, Broadbent Project Manager, or designee will communicate with the LRWQCB so that we may understand their work activities and road use in order to avoid head-to-head truck encounters on the access roads. In addition, requests for roadway improvements on site will be made to the LRWQCB through Atlantic Richfield and the CEC Project Manager or Broadbent Project Manager. The Atlantic Richfield project workforce are not assuming responsibility for ensuring that vehicles operated by or on behalf of the LRWQCB utilize the roads in the vicinity of the site in accordance with the Traffic Management Plan or any other application guidelines or requirements.

Atlantic Richfield's project workforce will coordinate simultaneous operations and road uses on the access roads with the LRWQCB.

4.3.3 *Communication with Site Personnel*

Daily anticipated traffic loads and patterns will be discussed with site personnel during morning site safety briefings. Daily deliveries, visitors, and restricted or prohibited access notifications will be posted for on-site personnel to see at/near the site sign-in on a large white board installed on the outside of the Administration Office Trailer.

4.3.4 *Communication with Atlantic Richfield and On-Site Project Oversight Personnel*

The Atlantic Richfield project workforce will continue to evaluate and discuss the road conditions with Atlantic Richfield HSSE Project Oversight representatives and site personnel. All persons working at the site and accessing the site (including drivers, escort personnel, and client representatives) will have Stop Work authority if unsafe conditions or questionable behavior are observed. If a Stop Work is initiated, the workforce will be notified, the risk will be assessed, and controls will be identified by competent personnel. Once the controls are in place and the issue resolved, the Stop Work intervention will be documented in the Field Authorization Form and the work may be resumed by collective consent of the parties involved. Each contractor will have a Stop Work practice that is consistent with RM's Stop Work Defined Practice and it will be included in their TSHASP.

5.0 TRAFFIC HAZARD MITIGATION MEASURES

Traffic controls will be properly implemented so that the work associated with the site can be accomplished while protecting the Atlantic Richfield project workforce, the public, the surrounding community, and the environment, by managing the interaction between vehicles entering the active work areas and traveling on the site access roads. The following sections present traffic hazard mitigation measures that will be implemented on the site access roads.

5.1 Traffic Control

During periods of heavy truck traffic, sentry-type access points, manned traffic control points, and/or one-way traffic patterns may be employed to safely maintain the flow of traffic to and from the site.

5.1.1 *Sentry Access Points*

During periods of heavy traffic, site access may be controlled through the use of sentry-type access points. During these designated periods, the site gates may remain unlocked and open during the day with sentry-type access points manned by flaggers on each side of the site to prevent public access and coordinate delivery traffic. This single point entrance will serve as a place to stop public access to the site and serve as a catch point for the trucks. A radio dispatch will go out to the site advising of incoming traffic and those trucks will be escorted by designated site personnel. The escort vehicle will be equipped with a CB or other type radio to communicate with the driver and two-way radios to communicate with site personnel. The truck will be escorted onto the site and back to the checkpoints and then released.

5.1.2 *Pilot Cars and Permit for Tractor-Trailers*

Tractor-trailers and large trucks with limited visibility will be escorted to the site using a pilot vehicle. Pilot vehicles will be driven by persons knowledgeable of the access road conditions. The pilot vehicle will lead the trucks, staying approximately ¼ mile ahead or in narrow areas to the next turnout so that oncoming traffic can be proactively stopped to allow ample room for the vehicles to safely pass and so the tractor-trailer can be stopped prior to reaching a significant risk area (i.e., the paved hair-pin turn; Area of Concern "A", Figure 3) so that the pilot driver can exit the vehicle and show the driver the area(s) of concern. Personnel operating the pilot vehicles will not direct the tractor-trailer driver as to how to negotiate the risk area(s), but rather will point out the hazards. The professional driver will be responsible for negotiating the area(s) of concern.

Tractor-trailers and pilot cars will be required to complete a permit prior to escorting drivers from US 395 to the site. A copy of the permit is provided as Appendix C. Part 1 of the Permit must be completed prior to the truck arriving at US 395. After the

completion of Part 1, the permit must be signed by the issuing authority and reviewed and countersigned by the pilot vehicle. Part 2 of the permit must be completed upon meeting the driver at US 395 and Leviathan Mine Road. After the completion of Page 1 of the permit, the driver must sign and date the permit as received.

Tractor-trailers not delivering past the paved hair-pin turn (Area of Concern "A", Figure 3) and single, 3-axle type trucks are exempt from this permit; however, these types of trucks must be piloted in and out of the site.

5.1.3 *Flag Persons*

During periods of road maintenance and any other time deemed necessary, a minimum of two flag persons may be deployed along the access roads to safely control the flow of traffic, and if necessary, implement one-way vehicle traffic control.

During times of road maintenance, flag persons will be deployed along either the CA or NV Access Routes to control the flow of traffic while the heavy equipment is being operated on the road. Each flag person will be required to don the minimum required personal protective equipment (PPE) for the site, with the exception that reflective vest must be Department of Transportation (DOT) approved. Each flag person will be equipped with "slow/stop" signage and two-way radios. Traffic may be stopped at each of the designated control points by the flag person. The flag person will then call the next control point to check for opposing traffic. When clear, the flag person will notify the next control point of the oncoming traffic and will direct the next control point to hold all traffic until the vehicle reaches their control point. This communication will continue between each flag persons along the entire access route.

5.2 CA Access Route Traffic Hazard Mitigation Measures

The following sections describe the alternatives to having manned traffic control stations on the CA Access Route. These alternatives include:

- enforcing the 15 mph speed limit;
- the installation of additional mirrors to increase visibility on blind corners;
- setting time-based travel restrictions; and
- limiting usage of the CA Access Route.

5.2.1 *Enforcing the 15 mph Speed Limit*

The advisory speed limit for the CA Access Route is posted at 15 mph. The Atlantic Richfield project workforce is expected to strictly obey a maximum speed limit of 15 mph on the CA Access Route. Personnel accessing the site can safely travel the road at this speed and have ample time to react to oncoming traffic situations on blind corners.

All personnel accessing the site will be strongly reminded of the 15 mph speed limit on the CA Access Route.

All site personnel need to be aware that the access roads are public use roads and that all vehicles do not follow the 15 mph advisory and will often be observed traveling at much faster speeds.

5.2.2 *Mirrors*

The use of mirrors greatly increases visibility around blind corners, allowing drivers to see and react to on-coming traffic. The Atlantic Richfield project workforce will install and maintain mirrors at areas of either limited visibility or converging traffic along the CA Access Route in accordance with the Signage Plan[6].

The mirrors may be installed at the beginning of each season and removed as part of winterization activities at the late fall of each year if necessary. During the time that the mirrors are installed, they will be properly maintained so they stay functional. If the mirrors are removed as part of winterization activities, the mounting poles may be left in place to facilitate ease of annual installation at the beginning of each season.

5.2.3 *Time-Based Travel Restrictions*

The Atlantic Richfield project workforce is required to attend the Daily Morning Safety Briefing. The morning safety briefings typically start between 7:00 and 8:00 a.m., with the start time variable based on the time of year/daylight. Due to the requirement for site workers to attend the morning safety briefing, the majority of site workers arrive on site within 30 to 45 minutes of one another early in the morning. The majority of site personnel generally leave the site between 3:30 and 5:00 in the afternoon. Observation of public use of Leviathan Mine Road over the last few years indicated that public use of the road usually occurs during the late morning hours and into the early afternoon.

To reduce the potential to encounter oncoming public traffic, it is recommended that site-related traffic leaving the site between the hours of 8:00 a.m. to 3:00 p.m. use the NV Access Route as much as practicable.

5.2.4 *Limiting CA Access Route Usage*

Throughout the year, there are several occasions where the use of the CA Access Route should be limited. This occurs as listed below:

- From October 1 through May 31 of each year, also known as the Limited Access Season (LAS), due to inclement weather, such as ice or snow;
- During periods of heavy road use typically encountered when the LRWQCB is operating at the site; and

[6] The Signage Plan, along with any revisions, will be available for review on-site in the Administration Office Trailer.

- During increased recreational traffic.

These occasions are described in more detail below along with instructions on when to limit the use of the CA Access Route.

During periods of inclement weather, the Inclement Weather Plan (included in the HSSE Program Document) will be followed and personnel will be advised whether or not site activities will be occurring and which access road is most advisable to use. Additionally, SR 89 is closed by the California Department of Transportation during the winter months, making wheeled access via the CA Access Route not possible.

In the summer months, the CA Access Route is also used by the LRWQCB and their contractors during their treatment operations. The LRWQCB treatment activities typically involve deliveries to the site and the removal of dried sludge from the site using semi-trucks. During periods of planned heavy road usage by the LRWQCB and its contractors, Atlantic Richfield site-related traffic is advised to use the NV Access Route to avoid potential oncoming truck traffic on the CA Access Route.

As mentioned previously, the CA Access Route is a public road with increased recreational traffic between June and August, on holiday weekends, and during hunting season. During times of heavy recreational traffic, site personnel are advised to use the NV Access Route. Site personnel should also be notified of the potential for increased daytime traffic during hunting season.

5.3 Flat Tire Procedures and Towing Services

5.3.1 *Flat Tire Procedures*

Due to the long access routes required to reach the site and off-road conditions on the site access roads and at the site, workers are at a higher risk to vehicle hazards including flat tires. To help mitigate the hazards associated with changing flat tires, a tire changing procedure was developed for personnel either working at or mobilizing to the site and is presented in the HSSE Program Document.

5.3.2 *Towing Services*

In the event a vehicle or truck gets stuck, site personnel may try to get the vehicle unstuck after an appropriate work risk assessment has been completed to ensure that it can be done safely. Otherwise, the following local tow companies that offer heavy duty towing services may be called:

- Silver State Towing
  (775) 783-8692
- Mort's Auto Body and Towing
  (775) 782-8888

5.4 Low Light Travel Restrictions

Due to the remote nature of the site, extended drive times may be required to access the site. In 2011, Atlantic Richfield implemented a driving policy with the goal of limiting travel during low light conditions. This policy was revised in 2013 and instructs the Atlantic Richfield project workforce to adjust the morning meeting times monthly, and specifically requires personnel to plan their site arrival and departure times to ensure driving occurs with ample ambient natural light. A copy of the revised driving policy is attached as Appendix D.

6.0 DISCLAIMER

These recommendations and any implementation thereof by Atlantic Richfield are intended solely for the purpose of improving the safety of Atlantic Richfield project workforce accessing the site. Atlantic Richfield is not authorized to manage traffic or perform road maintenance activities on the Leviathan Mine Road for the benefit of other persons, including LRWQCB personnel and members of the general public, which are the responsibilities of the USDA Forest Service and/or the Alpine County Department of Public Works.

7.0 REVISION SUMMARY

This Traffic Management Plan should be reviewed annually and updated as needed. This section includes a summary of amendments to this Traffic Management Plan.

Version	Author	Description of Change	Date
Rev. 0	Marc Lombardi	Initial publication.	4/1/2008
Rev. 1	Marc Lombardi	Added Table of Contents and minor content clarification.	6/25/2008
Rev. 2	Marc Lombardi	Added new section to summarize CA Access Road Evaluation.	3/31/2009
Rev. 3	Marc Lombardi	Minor content clarification.	9/1/2009
Rev. 4	Marc Lombardi	Updates to reflect new HSSE management system and administrative controls to replace one-way traffic control on the CA Access Route.	3/31/2010
Rev. 5	Spencer Archer Marc Lombardi	Minor edits to text and content. Added revision summary section.	4/12/2011
Rev 6	Spencer Archer Brian Hoese Michael Trynor Marc Lombardi	Minor edits to text and content updates to reflect new HSSE travel time restrictions.	3/30/2012
Rev 7	Mehran Ebrahimi Andy Andrews	Minor edits to text.	4/1/2013
Rev 8	Sydney Stewart Mike Johnson	Minor edits to text. Updates to reflect changes in management structure.	4/1/2014
Rev 9	Matt Esquibel Mike Johnson	Minor edits to text to reflect changes to site HSSE requirements/permits and HITRA update.	4/1/2015
Rev 10	Mike Johnson	Minor edits to text.	4/1/2016
Rev 11	Mike Johnson	Minor edits to text.	4/1/2017

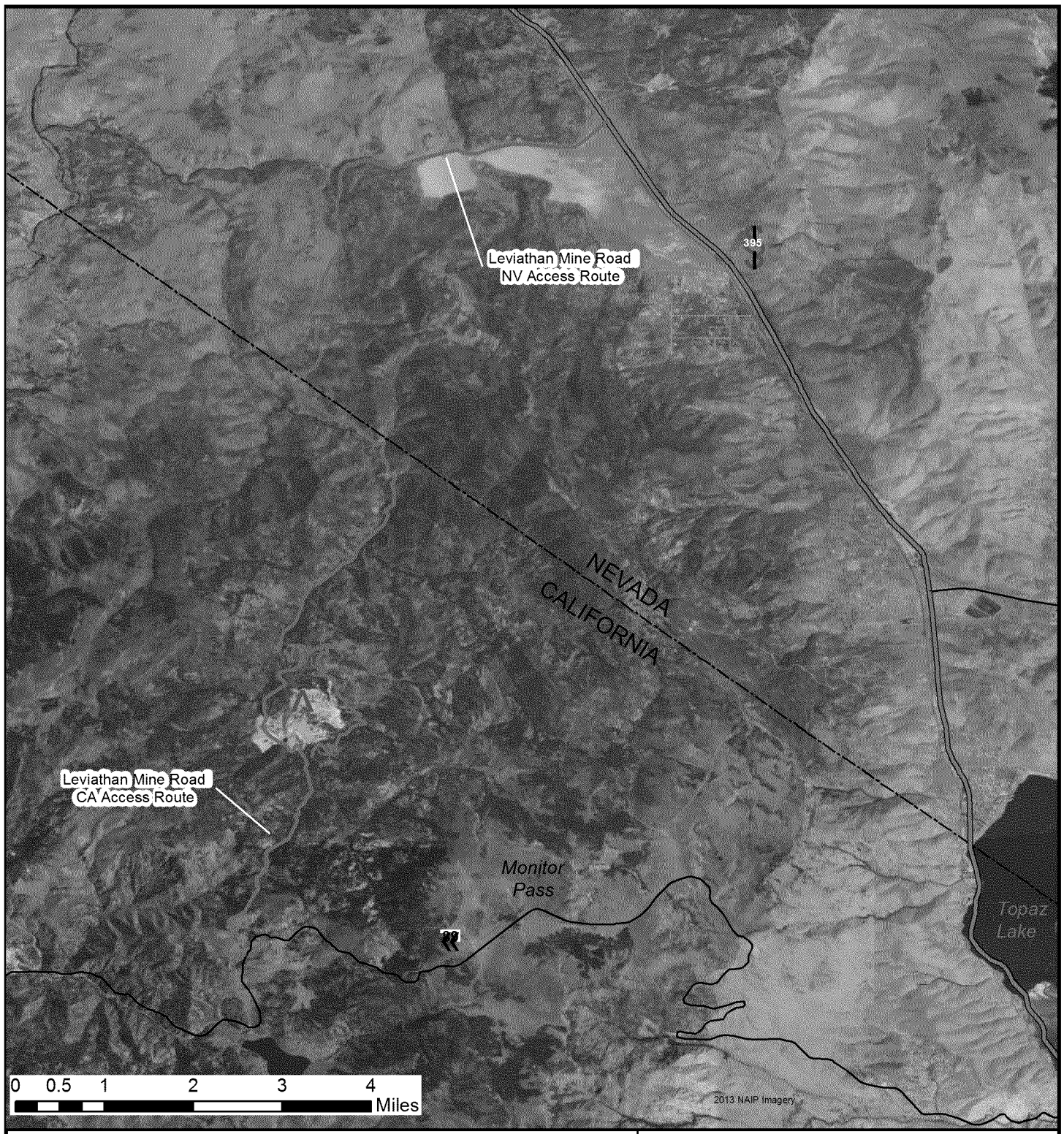
2017 ANNUAL ROAD OPERATING PLAN

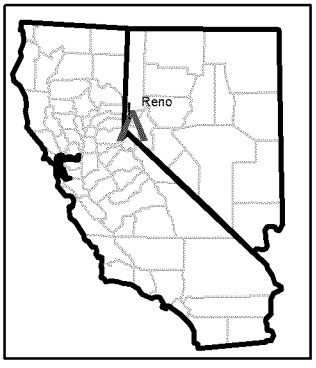
ATTACHMENT A: TRAFFIC MANAGEMENT PLAN

FIGURES

Leviathan Mine
Alpine County, California

April 2017





Explanation

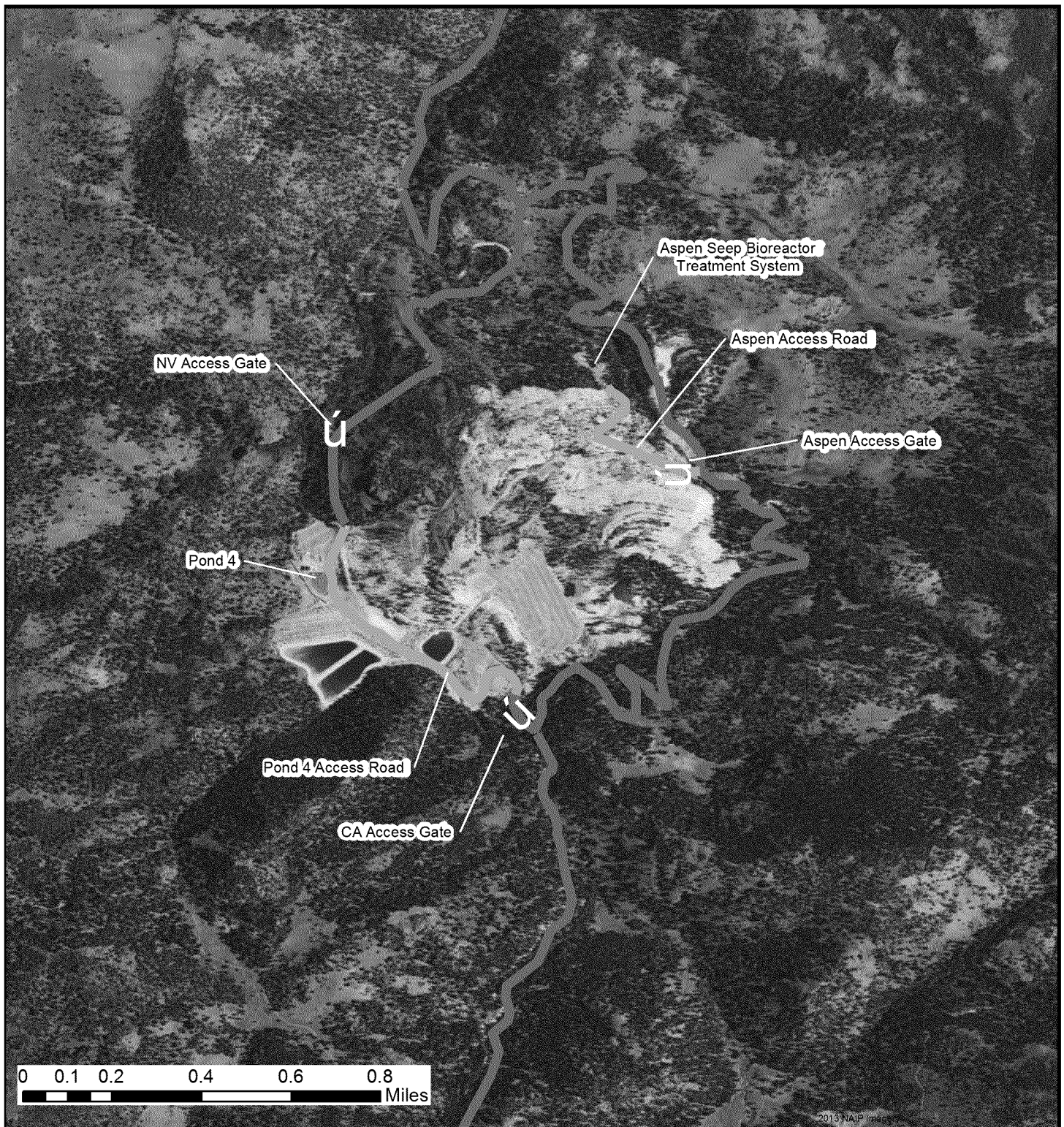
- State Route
- Highway
- Road
- Highway
- Leviathan Mine Site

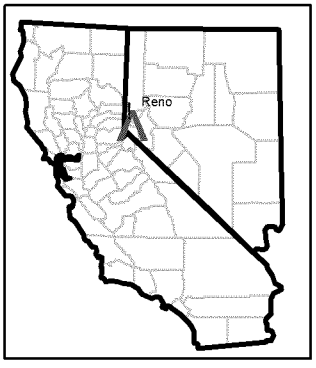
FIGURE 1

SITE ACCESS ROUTES

Copper Environmental Consulting

Date: 2/18/14	By: LG	Reviewed: MJ





Explanation

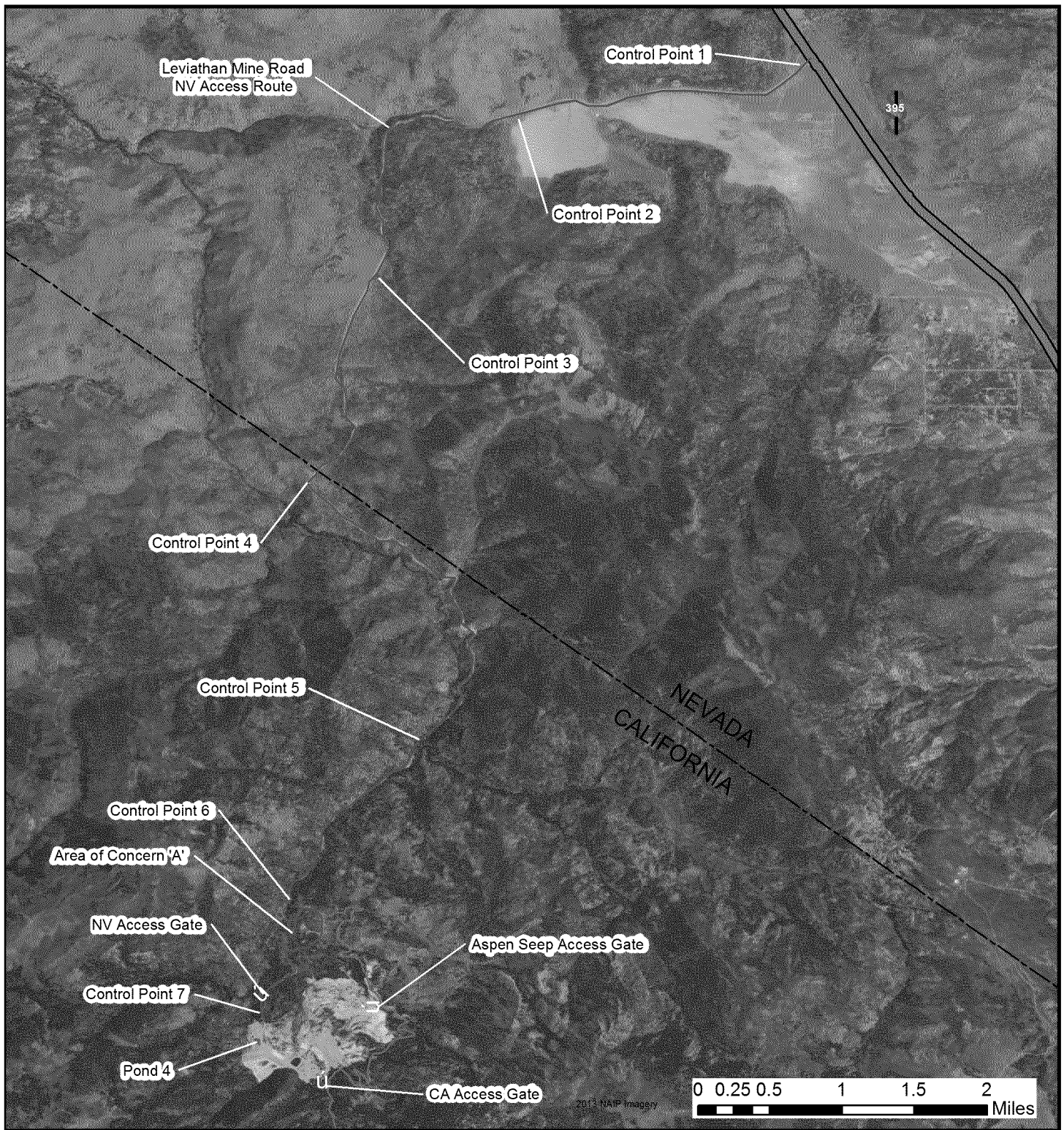
- Forest Service Road
- Access Road
- Leviathan Mine Site

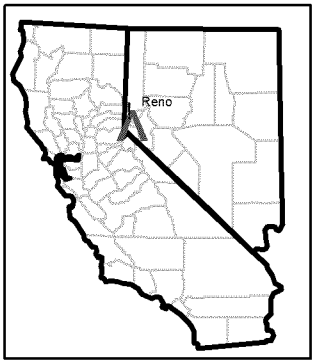
FIGURE 2

SITE ACCESS ROUTES

Copper Environmental Consulting

Date: 2/18/14	By: LG	Reviewed: MJ





Explanation

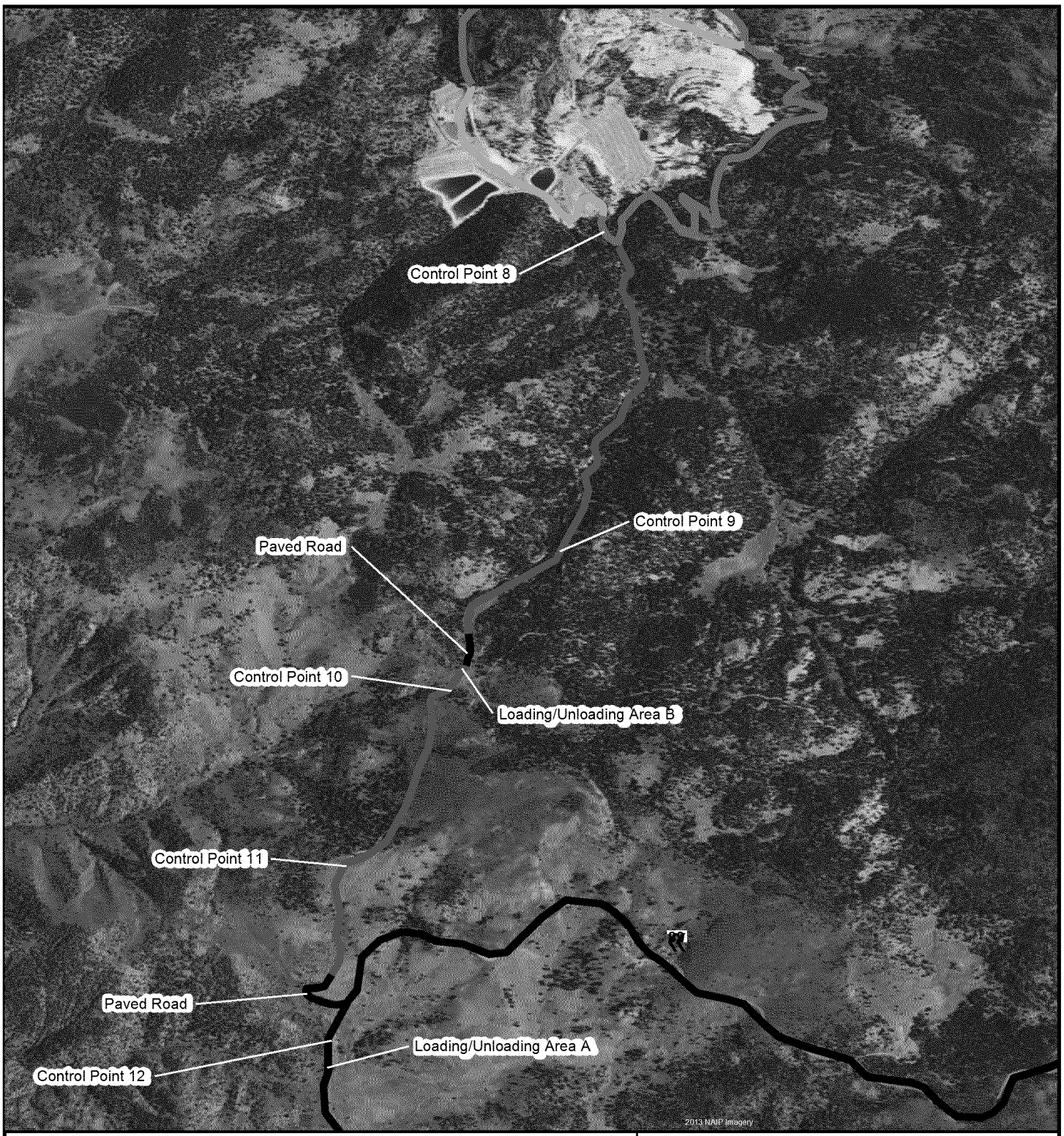
- Highway
- Forest Service Road
- Access Road
- Forest Service Road
- Highway
- Leviathan Mine Site

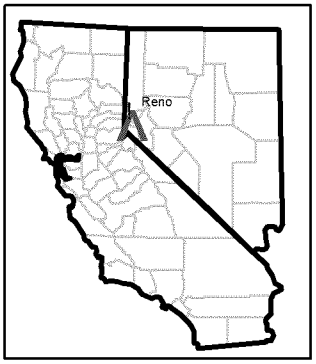
FIGURE 3

NEVADA ACCESS ROUTE

Copper Environmental Consulting

Date: 3/7/14	By: LG	Reviewed: MJ





Explanation

- State Route
- Forest Service Road
- Access Road
- Unpaved Road
- Paved Road

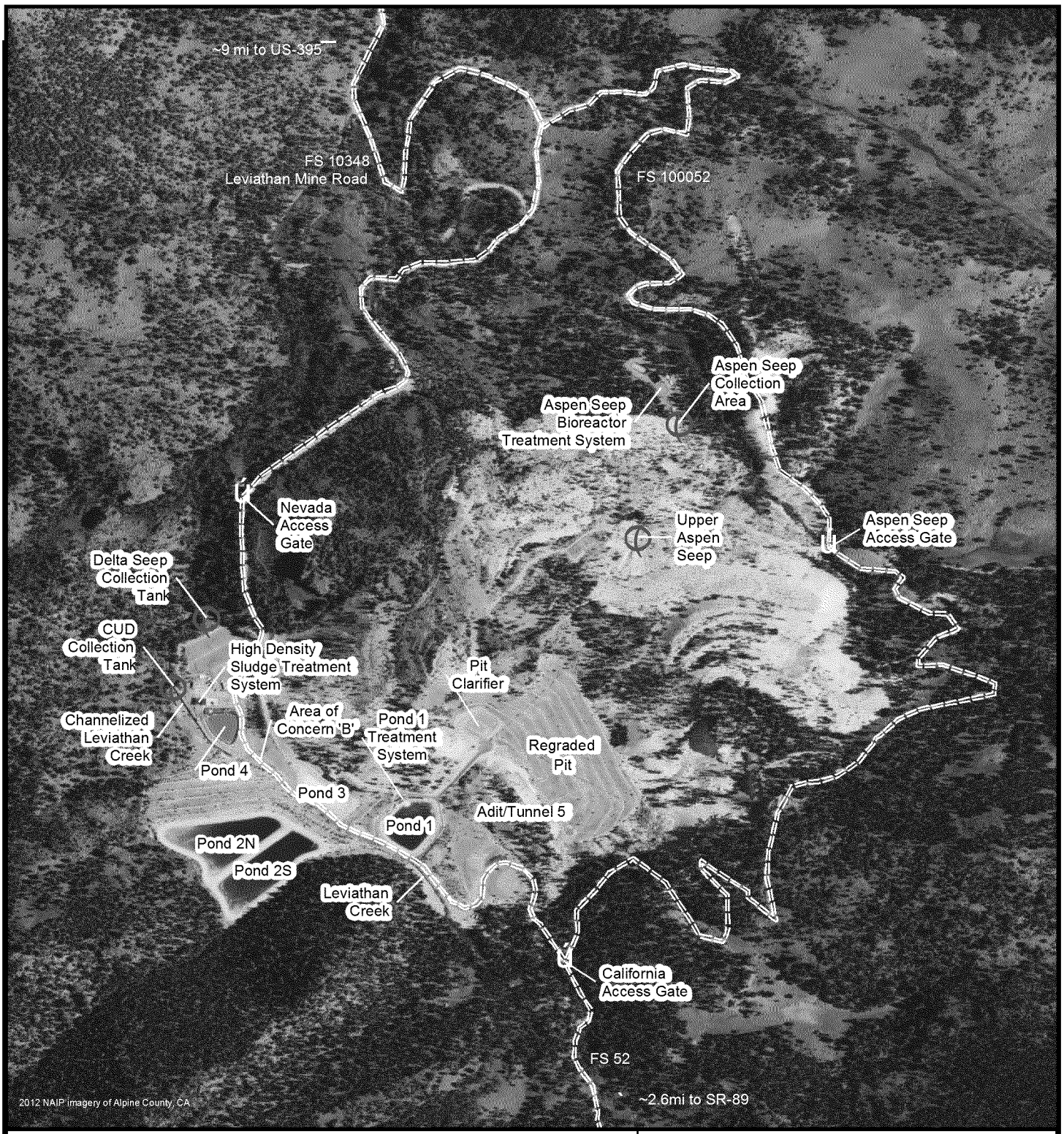
0 0.1 0.2 0.4 0.6 0.8 Miles

FIGURE 4

CALIFORNIA ACCESS ROUTE

Copper Environmental Consulting

Date: 3/7/14	By: LG	Reviewed: MJ



Explanation

Discharge Points

FS Forest Service

SR State Route

US United States Highway

0 0.05 0.1 0.2 0.3 0.4 Miles

FIGURE 5

SITE LAYOUT

Copper Environmental Consulting

Date: 3/7/14	By: LG	Reviewed: MJ

2017 ANNUAL ROAD OPERATING PLAN

ATTACHMENT A: TRAFFIC MANAGEMENT PLAN

APPENDIX A:
USDA FOREST SERVICE ROAD USE PERMIT

Leviathan Mine
Alpine County, California

April 2017

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FS-7700-41(12/06)
OMB 0596-0016

U.S. DEPARTMENT OF AGRICULTURE
FOREST SERVICE

ROAD USE PERMIT

AUTHORITY:

Section 4 and Section 6 of the National Forest Roads and Trails Act
16 U.S.C. 535 and 537

Atlantic Richfield Company (4 Centerpointe Drive, La Palma, CA 90623) is hereby guaranteed use of the following roads or road segments and related transportation facilities (hereinafter "roads") on the Carson Ranger District, Humboldt-Toiyabe National Forest, for commercial hauling (transportation of goods and supplies), subject to the terms and conditions of this permit:

Leviathan Mine Road aka FS Road 10052; extending approximately 9 miles between Highway 395 and the Leviathan Mine site (Site) to the east and approximately 5 miles from the Site to Highway 89 on the west. This permit includes the portion of the 10052 road extending east past the 10348 road, to the Aspen Seep bioreactor. The roads are shown on the attached Appendix C.

APPENDICES

A – Annual Operating Plan
B – Maintenance Requirements
C – Map

TERMS AND CONDITIONS

I. GENERAL TERMS

A. AUTHORITY. This permit is issued pursuant to the National Forest Roads and Trails Act, 16 U.S.C. 535 and 537, and 36 CFR Part 212, Subpart A, as amended, and is subject to their provisions.

B. RESPONSIBLE OFFICIAL. The responsible official is the Forest Supervisor, Humboldt-Toiyabe National Forest, pursuant to Forest Service Handbook 7709.59.20.42.

C. TERM. This permit shall expire at midnight on December 31, 2018, approximately five years from the date of issuance. Expiration of this permit shall not require notice, a decision document, or any environmental analysis or other documentation.

D. RENEWAL. This permit is not renewable. Prior to expiration of this permit, the holder may apply for a new permit that would renew the use authorized by this permit. Renewal of the use shall be at the sole discretion of the responsible official.

E. AMENDMENT. This permit may be amended in whole or in part by the Forest Service when, at the discretion of the responsible official, this action is deemed necessary or desirable to incorporate new terms that may be required by law, regulation, directive, the applicable land management plan, or projects and activities implementing a land management plan pursuant to 36 CFR part 215.

F. COMPLIANCE WITH LAWS, REGULATIONS, AND OTHER LEGAL REQUIREMENTS. In exercising the rights and privileges granted by this permit, the holder shall comply with all present and future federal laws and regulations and all present and future state, county, and municipal laws, regulations, and other legal requirements, including state traffic laws, that apply to the permit area, to the extent they do not conflict with

federal law, regulation, or policy. The Forest Service assumes no responsibility for enforcing laws, regulations, and other legal requirements that fall under the jurisdiction of other governmental entities.

G. NON-EXCLUSIVE USE. The use authorized by this permit is not exclusive. The Forest Service reserves the right to use the roads authorized by this permit and to allow others to use them at any time. The holder shall use the roads authorized by this permit in a manner that will not unreasonably or unnecessarily interfere with their use by others, including the Forest Service. The Forest Service will develop separate documentation with the California Regional Water Quality Control Board that guarantees the Board's access, provides road maintenance specifications and requests an annual operating plan, similar to those provided in this document. Except for any restrictions that the holder and the Forest Service agree are necessary to protect public safety and road investments, the roads authorized by this permit shall remain open to the public for all lawful purposes.

H. ASSIGNABILITY. This permit is not assignable or transferable.

II. OPERATIONS

A. ANNUAL OPERATING PLAN. The holder shall prepare an initial operating plan and annually revise by April 1 of each calendar year 2014through 2018, an operating plan. The annual operating plan shall be prepared in consultation with the responsible official or the responsible official's designated representative and shall cover all operations authorized by this permit. At a minimum, the annual operating plan shall specify the date the use authorized by this permit will commence, the duration and extent of the use, the likely products that will be hauled, a traffic control plan per clause II.D (3), the names of the holder's employees, contractors, and subcontractors who will use the roads authorized by this permit on behalf of the holder, any other information regarding the authorized use deemed necessary by the responsible official, and any road maintenance foreseen to accommodate the expected traffic. The annual operating plan shall be submitted by the holder and approved by the responsible official or the responsible official's designated representative prior to commencement of commercial hauling under this permit and shall be attached to this permit as Appendix A. If there is any material change in the information contained in the annual operating plan, the holder shall notify the responsible official promptly in writing of the change.

B. HOLDER'S REPRESENTATIVE. The holder shall designate a representative for purposes of administration of this permit and shall notify the responsible official in writing who the holder's representative will be.

C. PUBLIC SAFETY. When the holder is engaged in commercial hauling adjacent to or on National Forest System roads or National Forest System trails open to public travel, the holder shall provide users with adequate warning of hazardous conditions associated with the holder's operations. A traffic control plan mitigating public safety concerns for routine hauling is part of this permit. An addendum to the traffic control plan shall be supplied to cover unique hauling situations (e.g. oversize loads). Warning devices shall be appropriate for current conditions and shall be covered or removed when not needed. Flags and other warning devices shall comply with the Manual on Uniform Traffic Control Devices for Streets and Highways (MUTCD) and any specifications attached to this permit.

D. TRAFFIC RULES AND USE RESTRICTIONS

1. The holder and its agents, employees, and contractors shall comply with all traffic rules and use restrictions imposed by the Forest Service, including:

a. Road closures or use restrictions prompted by weather conditions, a fire hazard, or road construction or maintenance for uses not listed in this permit.

b. Traffic rules for safe and effective use of roads.

c. Regulation of the number of vehicles using a road to prevent traffic congestion.

2. Unless specified in this permit or approved in writing by the responsible official, use of motor vehicles by the holder or its agents, employees, or contractors must be in accordance with the applicable motor vehicle use map (36 CFR 261.13).

3. Temporary traffic control signs, flagging, and warning devices for operation or maintenance conducted under this permit shall comply with Part 6 of the MUTCD.

4. The holder shall not operate vehicles or equipment with cleats or other tracks that will injure the road surface.

E. REQUIREMENT TO CARRY A COPY OF THE PERMIT. Drivers of all vehicles operating under this permit shall have a copy of the first sheet of this permit in their vehicle. The copy will be presented, on request, to any Forest Service officer.

III. PERFORMANCE

A. MAINTENANCE REQUIRED TO ACCOMMODATE USE. The holders shall perform road maintenance required to accommodate the holder's use under this permit.

B. SCHEDULE, PLANS, AND SPECIFICATIONS. To accommodate the authorized use, the holder shall perform the road maintenance to specifications described in Appendix B, in accordance with the annual operating plan and schedule provided in Appendix A. A road log has been completed by the Forest Service that identifies drainage features, drain dips, super-elevations, low points, and other pertinent features by milepost that may be affected by maintenance procedures specified in this permit and appendix B.

C. COMMENSURATE SHARE BETWEEN PARTIES

1. The holder shall perform maintenance commensurate with the holder's use of the roads authorized by this permit (the holder's commensurate share), as described in each user's annual operating plan and measured by vehicle units or miles of road used most frequently. The holder shall be entirely responsible for maintenance that is necessitated by the holder's use, i.e., maintenance which would not be necessary if the holder's use did not occur. In addition, the holder is authorized to perform, and if the holder chooses to perform shall be proportionately responsible with other users of the roads authorized by this permit or similar instrument for maintenance not necessitated by traffic, but needed for safe access to the site, i.e., maintenance that is necessary due to natural causes such as rain, wind, rock fall, and growth of brush. Maintenance that could be required by this clause includes, at a minimum, work addressed in section IV of this permit.

2. Commensurate shares, as defined in this section, will be allocated between the Atlantic Richfield Company and the California Regional Water Quality Control Board, based on the annual operating plans provided.

This proportionate use applies to: **Leviathan Mine Road aka FS Road 10052; extending approximately 9 miles between Highway 395 and the Leviathan Mine site (Site) to the east and approximately 5 miles from the Site to Highway 89 on the west, except that ARCO is 100% responsible for maintenance of the 10052 road extending east past the 10348 road, to the Aspen Seep bioreactor.**

D. PERFORMANCE BOND FOR ROAD MAINTENANCE. As a further guarantee of the holder's commensurate share obligation, the responsible official may require the holder to furnish a surety bond or other security.

1. As a further guarantee of compliance with the holder's commensurate share obligation, ARCO shall deliver and maintain a surety bond or other acceptable security, such as cash deposited and maintained in a federal depository or negotiable securities of the United States, in the amount of $10,000. The responsible official may periodically evaluate the adequacy of the bond or other security and increase or decrease the amount as appropriate. If the bond or other security becomes unsatisfactory to the responsible official, the holder shall within 30 days of demand furnish a new bond or other security issued by a surety that is solvent and satisfactory to the responsible official. If the holder fails to meet any of the requirements secured under this clause, money deposited pursuant to this clause shall be retained by the United States to the extent necessary to satisfy the obligations secured under this clause, without prejudice to any other rights and remedies of the United States.

2. The bond shall be held for the length of the permit.

3. The bond will be released or other security returned 30 days after (a) the responsible official certifies that the obligations covered by the bond or other security are met and (b) the holder establishes to the satisfaction of the responsible official that all claims for labor and material for the secured obligations have been paid or released.

IV. REQUIREMENTS FOR CONDUCTING MAINTENANCE

A. IN GENERAL. When maintenance is performed, it shall be conducted in accordance with the following requirements and the requirements in Appendix B:

1. The holder shall perform maintenance on the roads authorized by this permit that is necessary to protect and repair the roadbed, road surface, and associated drainage features.

2. The holder shall resurface the roads authorized by this permit to the extent loss of surfacing is caused by the use authorized by this permit.

3. This permit does not authorize reconstruction of existing roads or new construction to accommodate specific commercial traffic along the specified corridor. Consultation with the responsible official or their designee is recommended as early as possible during the planning phase when these situations arise.

B. SNOW REMOVAL. If snow removal is performed, it shall be conducted in a manner that protects roads, ensures safe and efficient transportation of materials, and prevents erosion damage to roads, streams, and adjacent lands. The holder shall exercise all snow removal procedures outlined in Appendix B, if and when applicable. The permittee is not obligated to perform snow removal.

V. RIGHTS AND LIABILITIES

A. LEGAL EFFECT OF THE PERMIT. This permit, which is revocable and terminable, is a federal license. This permit does not constitute a contract or lease for purposes of the Contract Disputes Act, 41 U.S.C. 601. This permit is not real property, does not convey any interest in real property, and may not be used as collateral for a loan.

B. VALID OUTSTANDING RIGHTS. This permit is subject to all valid outstanding rights.

C. ABSENCE OF THIRD-PARTY BENEFICIARY RIGHTS. The parties to this permit do not intend to confer any rights on any third party as a beneficiary under this permit.

D. RISK OF LOSS. The holder assumes all risk of loss associated with use of the roads authorized by this permit, including but not limited to theft, vandalism, fire and any fire-fighting activities (including prescribed burns), avalanches, rising waters, winds, falling limbs or trees, and acts of God.

E. DAMAGE TO UNITED STATES PROPERTY. The holder has an affirmative duty to protect from damage the land, property, and other interests of the United States. Damage includes but is not limited to fire suppression costs, damage to government improvements covered by this permit, and all costs and damages associated with or resulting from the release or threatened release of a hazardous material occurring during or as a result of the activities of the holder or the holder's heirs, assigns, agents, employees, contractors, or lessees on, or related to, the lands, property, and other interests specifically authorized by this permit. For purposes of this clause, "hazardous material" shall mean any hazardous substance, pollutant, contaminant, hazardous waste, oil, and/or petroleum product, as those terms are defined under any federal, state, or local law or regulation.

1. The holder shall avoid damaging or contaminating the environment, including but not limited to the soil, vegetation (such as trees, shrubs, and grass), surface water, and groundwater, while conducting commercial hauling under this permit. If the environment or any government property covered by this permit becomes damaged as a result of the holder's use authorized under this permit, the holder shall immediately repair the damage or replace the damaged items to the satisfaction of the responsible official and at no expense to the United States.

2. The holder shall be liable for all injury, loss, or damage incurred by the United States, including fire suppression, or other costs in connection with rehabilitation or restoration of natural resources caused by the use authorized by this permit. Compensation shall include but not be limited to the value of resources damaged or destroyed, the costs of restoration, cleanup, or other mitigation, fire suppression or other types of abatement costs, and all administrative, legal (including attorney's fees), and other costs. Such costs may be deducted from a performance bond required under clause III D.1.

3. The holder shall be liable for damage caused by use of the holder or the holder's heirs, assigns, agents, employees, contractors, or lessees to all roads and trails of the United States to the same extent as provided under clause V.E.1.

F. HEALTH, SAFETY, AND ENVIRONMENTAL PROTECTION. The holder shall promptly abate as completely as possible and in compliance with all applicable laws and regulations any activity or condition arising out of or relating to use of the roads authorized by this permit that causes or threatens to cause a hazard to public health or the safety of the holder's employees or agents or harm to the environment (including areas of vegetation or timber, fish or other wildlife populations, their habitats, or any other natural resources). The holder shall immediately notify the responsible official of all traffic accidents and any other serious accidents that occur in connection with the authorized use. The responsibility to protect the health and safety of all persons affected by use of the roads authorized by this permit is solely that of the holder. The Forest Service has no duty under the terms of this permit to inspect the roads authorized by this permit or authorized activities of the holder for hazardous conditions or compliance with health and safety standards.

G. COMPLIANCE WITH ENVIRONMENTAL LAWS. The holder shall in connection with use of the roads authorized by this permit comply with all applicable federal, state, and local environmental laws and regulations, including but not limited to those established pursuant to the Resource Conservation and Recovery Act, as amended, 42 U.S.C. 6901 *et seq.*, the Federal Water Pollution Control Act, as amended, 33 U.S.C. 1251 *et seq.*, the Oil Pollution Act, as amended, 33 U.S.C. 2701 *et seq.*, the Clean Air Act, as amended, 42 U.S.C. 7401 *et seq.*, the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended, 42 U.S.C. 9601 *et seq.*, the Toxic Substances Control Act, as amended, 15 U.S.C. 2601 *et seq.*, the Federal Insecticide, Fungicide, and Rodenticide Act, as amended, 7 U.S.C. 136 *et seq.*, and the Safe Drinking Water Act, as amended, 42 U.S.C. 300f *et seq.*

H. INDEMNIFICATION OF THE UNITED STATES. The holder shall indemnify, defend, and hold harmless the United States for any costs, damages, claims, liabilities, and judgments arising from the acts or omissions of the holder or the holder's employees, contractors, or subcontractors in connection with use of the roads authorized by this permit. This indemnification provision includes but is not limited to acts and omissions of the holder or the holder's heirs, assigns, agents, employees, or contractors in connection with use of the roads authorized by this permit which result in (1) violations of any laws and regulations which are now or which may in the future become applicable, and including but not limited to those environmental laws listed in clause V.G of this permit; (2) judgments, claims, demands, penalties, or fees assessed against the United States;
(3) costs, expenses, and damages incurred by the United States; or (4) the release or threatened release of any solid waste, hazardous waste, hazardous substance, pollutant, contaminant, oil in any form, or petroleum product into the environment. The responsible official may prescribe terms that allow the holder to replace, repair, restore, or otherwise undertake necessary curative actions to mitigate damages in addition to or as an alternative to monetary indemnification.

I. INSURANCE

1. The holder or the holder's employees, contractors, or subcontractors shall have in force automobile insurance covering losses associated with the use authorized by this permit in at least the amount of $300,000 for injury or death to one person, $500,000 for injury or death to two or more persons, and $100,000 for property damage. Minimum amounts of coverage and other insurance requirements are subject to change at the sole discretion of the responsible official on the anniversary date of this permit.

2. Any insurance policies obtained by the holder pursuant to this clause shall name the United States and Alpine County as additional insured parties. The additional insured provision shall provide for insurance coverage for the United States and Alpine County as required under clause V.I (1). The policies also shall

specify that the insurance company shall give 30 days prior written notice to the responsible official of cancellation of or any modification to the policies.

3. The holder shall furnish proof of insurance, such as a certificate of insurance, to the responsible official prior to issuance of this permit and each year thereafter that this permit is in effect. The Forest Service reserves the right to review and approve the insurance policy prior to issuance. The holder shall send an authenticated copy of any insurance policy obtained pursuant to clause V.I to the responsible official immediately upon issuance of the policy. The certificate of insurance, the authenticated copy of the insurance policy, and written notice of cancellation or modification of insurance should be sent to Forest Supervisor, Humboldt-Toiyabe National Forest, 1200 Franklin Way, Sparks, NV 89431.

VI. REVOCATION, SUSPENSION, AND TERMINATION

A. REVOCATION AND SUSPENSION. The responsible official may revoke or suspend this permit in whole or in part for:

1. Noncompliance with federal, state, or local law.

2. Noncompliance with the terms of this permit.

3. Abandonment or other failure of the holder to exercise the privileges granted.

Prior to revocation or suspension, other than immediate suspension under clause VI.B, the responsible official shall give the holder written notice of the grounds for revocation or suspension and a reasonable time, typically not to exceed 90 days, to cure any noncompliance. Revocation or suspension of this permit shall not give rise to any claim for damages by the holder against the Forest Service.

B. IMMEDIATE SUSPENSION. The responsible official may immediately suspend this permit in whole or in part when necessary to protect public health or safety or the environment. The suspension decision shall be in writing.

C. TERMINATION. This permit shall terminate when by its terms a fixed or agreed upon condition, event, or time occurs without any action by the responsible official, such as expiration of the permit by its terms on a specified date or with the consent of the holder. Termination of this permit shall not give rise to any claim for damages by the holder against the Forest Service.

VII. MISCELLANEOUS PROVISIONS

A. MEMBERS OF CONGRESS. No member of or delegate to Congress or Resident Commissioner shall benefit from this permit either directly or indirectly, except to the extent the authorized use provides a general benefit to a corporation.

B. CURRENT ADDRESSES. The holder and the responsible official shall keep each other informed of current mailing addresses, including those necessary for payment of the holder's commensurate or investment share.

C. SUPERIOR CLAUSES. If there is a conflict between any of the preceding printed clauses and any of the following clauses, the preceding printed clauses shall control.

THIS PERMIT IS ACCEPTED SUBJECT TO ALL ITS TERMS AND CONDITIONS.

BEFORE ANY PERMIT IS ISSUED TO AN ENTITY, DOCUMENTATION MUST BE PROVIDED TO THE RESPONSIBLE OFFICIAL OF THE AUTHORITY OF THE SIGNATORY FOR THE ENTITY TO BIND IT TO THE TERMS AND CONDITIONS OF THE PERMIT.

ACCEPTED:

NAME AND TITLE SIGNATURE DATE
SIGNING ON BEHALF OF ATLANTIC RICHFIELD COMPANY

APPROVED:

for Forest Supervisor, RESPONSIBLE OFFICIAL SIGNATURE 7/15/13 DATE

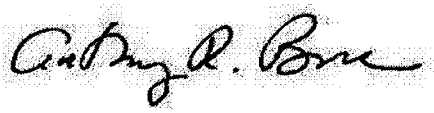
According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0596-0016. The time required to complete this information collection is estimated to average one-quarter hour for the application and eight hours for the annual operating plan, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, gender, religion, age, disability, political beliefs, sexual orientation, and marital or family status. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at 202-720-2600 (voice and TDD).

To file a discrimination complaint write USDA, Director, Office of Civil Rights, 1400 Independence Avenue, SW, Washington, DC 20250-9410 or call (800) 975-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

The Privacy Act of 1974 (5 U.S.C. 552a) and the Freedom of Information Act (5 U.S.C. 552) govern the confidentiality to be provided for information received by the Forest Service.

ACCEPTED:



Anthony R. Brown, Project Manager, Mining July 16, 2013

NAME AND TITLE SIGNATURE DATE
SIGNING ON BEHALF OF ATLANTIC RICHFIELD COMPANY

APPROVED:

Forest Supervisor, RESPONSIBLE OFFICIAL SIGNATURE DATE

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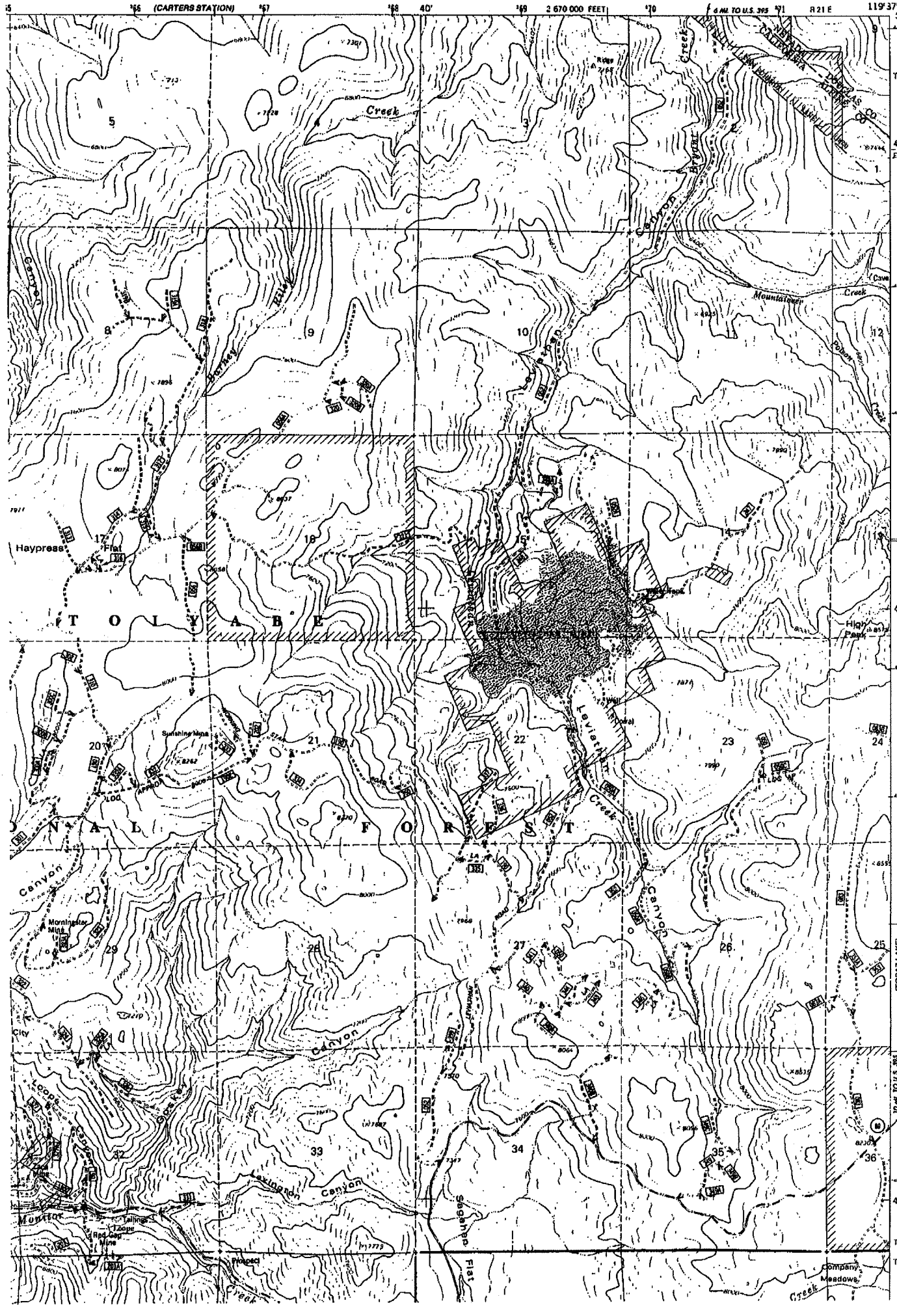

2017 ANNUAL ROAD OPERATING PLAN

ATTACHMENT A: TRAFFIC MANAGEMENT PLAN

APPENDIX B:

LEVIATHAN MINE ROAD MAINTENANCE AND RESURFACING SPECIFICATIONS

Leviathan Mine
Alpine County, California

April 2017

APPENDIX B

LEVIATHAN MINE ROAD MAINTENANCE AND RESURFACING SPECIFICATIONS

MAINTENANCE: Atlantic Richfield Company and the California Regional Water Quality Control Board, Lahontan Region, shall bear the expense of maintenance proportionate to their use.

Maintenance shall be performed in accordance with Forest Service specifications or requirements for maintenance as hereinafter listed, or as may be mutually agreed upon from time to time and shall consist of (1) current maintenance as necessary to preserve, repair, and protect the roadbed, surface and all structures and appurtenances, and (2) resurfacing equivalent in extent to the wear and loss of surfacing caused by commercial hauling supporting abatement of water quality problems at the Leviathan Mine Site.

1. GENERAL SPECIFICATIONS

All work shall be performed in a skillful and workmanlike manner. Personnel and equipment shall be capable of prosecuting the work.

The maintenance work to be performed shall include grading and shaping the roadway and shoulders; placement of weed-free aggregate to resurface low spots and cover sharp rock edges, cleaning and shaping the drainage ditches, grade dips and water bars to promote drainage; cleaning out catch basins, inverts, interior and outlets of culverts; removal of tree limbs, brush and obstructions; and the cleaning and shaping of lead-off ditches to convey roadway runoff and prevent water ponding. Approval is needed prior to eliminating live trees exceeding nine-inch diameter and snags exceeding 30-inch diameter.

In general, the roadway and shoulder shall be shaped to provide effective water drainage. In some cases, outsloping may be permitted if authorized by the Forest Service. Maintain existing crown and super. All berms, either new or existing, shall be removed from the roadway shoulder to the maximum extent possible. Only short lengths of berms (not to exceed 12 feet) will be permitted to remain on roadways, where protruding stumps or outlets to culverts prohibit removal. The only exception to this will be on roads where berms have been incorporated into design to prevent erosion of fill slopes.

The blading shall proceed in an orderly fashion by successive passes with a grader parallel to the road centerline, progressing from the lower side to the upper side of the roadway and back across. In the process, all ruts shall be filled and drainage maintained on the roadway. Existing crowns will be maintained when possible. Portions of roadways, when excessive ruts or corrugation exist, when ruts or corrugation are 3 inches deep of more, shall be flat bladed before pulling ditches. Remove large loose rocks, sloughed material and debris from road surface to locations that will not interfere with ditch flow and culvert performance.

Fines dislodged in blading roadways shall not be wasted over shoulders of roads; these fines shall be incorporated in plating of existing roadbed.

Ditch blading shall consist of removing slough, road surfacing material, large rocks, and other obstructions. Care shall be taken to not widen or deepen the ditch. Widened roadway sections at curves, fill sections, and turnouts shall also be included in the blading of the roadway. The shoulder line shall be definite, continuous, and smooth; with no abrupt changes in alignment, except when dictated by existing conditions

The blading shall maintain the roadway width as existing. Road widths shall not be increased by cutting backslope or increasing the slope of the shoulder. Blading will be performed in a manner that will retain suitable surface materials on the roadway and encourage drainage.

Apply water to the road surface in advance of blading activity to reduce dust generation. Do not blade when road is too wet or too dry to permit compaction of surface materials. Incorporate fire prevention tactics when blading rocky sections of road during high or extreme fire danger season (e.g. water truck on site).

Ensure that any fill product used to restore the roadsurface/roadbed is certified weed-free.

CULVERTS AND CATCH BASINS

The upper and lower ends, as well as the inside of existing culverts, for a minimum distance of 2 feet shall be thoroughly cleaned to provide unobstructed flow to and from the culvert. Limbs, brush, and all other types of trash on backslope within five feet of inlet and outlet of culverts shall be removed.

Catch basins shall be cleaned of excess material above the flow line of culverts or above the floor of concrete or masonry catch basins, the discharge end of culverts shall be cleared of material to the elevation of culvert outlets for a distance of five feet.

DITCHES

All roadway ditches, lead-off ditches from culverts or cut sections, and lead-in ditches shall be cleaned of any material which would obstruct the flow. The work is to be accomplished so that reasonable conformance to previous line, grade, and cross section will be achieved. Remove vegetation from roadside ditches only when it interferes with water flow. Do not excavate ditches deeper than 18 inches and maintain a 2 to 1 slope from the road shoulder.

Dikes (ditch blocks) for intercepting flow of water on a sidehill installation shall be no higher than the culvert diameter, and in any case, lower than shoulder of road.

GRADE DIPS

Grade dips shall be maintained so as to be of sufficient depth and width to adequately drain roadway, and in no case shall be flat bladed over and filled in. Lower end of grade dips shall be shaped to adequately drain away from roadway.

REMOVAL OF OBSTRUCTIONS

Removal of trees, limbs, brush, and obstructions shall be limited to those which are within three feet of the travel way, obstructing the driver's sight distance. Limbs will be pruned next to trunk of trees with exception of portions of overhanging limbs. Material removed shall be scattered outside the road prism. Piling will not be required; burning is prohibited.

PUBLIC SAFETY

Unless otherwise agreed to in writing, when permittee's operations are in progress adjacent to or on Forest Service controlled roads and trails open to public travel, permittee shall provide adequate warning of hazardous or potentially hazardous conditions associated with permittee's operation. Work signs meeting requirements of the Manual on Uniform Traffic Control Devices shall be displayed at all times when equipment is working within the road right-of-way. Devices shall be appropriate to current conditions and shall be covered or removed when not needed.

The blade operator shall exercise due caution and care when operating to prevent undue conflict with public users of the roads.

A reflectorized "Slow Moving" vehicle emblem shall be attached to all motor patrols and a least one amber flashing warning lamp shall be visible from front and rear of equipment. Lamp shall flash in unison and be mounted as high as possible on cab of motor grader.

The blade operator shall post warning signs with flags on either end of the road section being worked to warn road users of the work in progress.

SNOW REMOVAL

Snow removal shall be done in a manner to preserve and protect the roads, to the extent necessary to insure safe and efficient transportation of materials, and to prevent excessive erosion damage to roads, streams, and adjacent lands.

Snow removal work shall include:

- Removal of snow from entire road surface width including turnouts. Snow must not be removed to the road surface. A minimum two-inch depth must be left to protect the roadway.

- Removal of snow slides, earth slides, fallen timber, and boulders that obstruct normal road surface width.

- Removal of snow, ice, and debris from culverts so that the drainage system will function efficiently at all times. Ensure that rip-rap component remains at outlets to prevent/control erosion.

- All items of snow removal shall be done currently as necessary to insure safe, efficient transportation. Work shall be done in accordance with the following minimum standards of performance:

- Removal of material. All debris (sloughed rocks, large boulders, vegetative matter, etc.), except snow and ice, that is removed from the road surface and ditches shall be deposited away from stream channels and culverts at agreed upon locations.

- During snow removal operations, banks and backslopes shall not be undercut nor shall gravel or other selected surfacing material be bladed off the roadway surface.

- Snow berms shall not be left on the road surface. Berms left on the shoulder of road shall be removed and/or drainage holes shall be opened and maintained. Drainage holes shall be spaced as required to obtain satisfactory surface drainage without discharge on erodible fills.

- Dozers shall not be used to plow snow on system roads without written approval of Forest Service.

- Road and/or resource damage resulting from snow removal completed under these guidelines will be mitigated in a timely manner.

- Periodic snow removal should be contemplated during heavy snow years to prevent excessive road degradation caused by spring melt and runoff.

2017 ANNUAL ROAD OPERATING PLAN
ATTACHMENT A: TRAFFIC MANAGEMENT PLAN

APPENDIX C:
LEVIATHAN SITE SPECIFIC PERMIT

Leviathan Mine
Alpine County, California

April 2017

SITE PERMIT
LIGHT VEHICLE OPERATOR
(RENTAL/LEASED/COMPANY OWNED PICKUPS, SUVs, AUTOMOBILES, DELIVERY VEHICLES OPERATING ON/FROM/TO THE SITE)

Permit Number:	Operator Name:
Facility:	Purpose of Vehicle Operation (Be Specific):
Vehicle Description:	Access Route(s):

1. Has the vehicle operator completed Hands on Driving Hazard/Risk and Mitigation Training? Yes No
   - *If yes, date completed:* _____
   - *If no, or the permit was not issued during the current work season, they must be driven up the road and the hazards and mitigations explained – this includes all access routes to the site they will be using.*
   - *The light vehicle must also be piloted/escorted in to the site the first time it is driven in by the vehicle operator. Date completed:* _____

2. Number of years that the operator has been driving similar vehicles? _____

3. Date of Defensive Driver Training (DDT) or Commercial Driver's License (CDL) expiration date:
   DDT: _____
   CDL: _____
   - *If the operator does not have one of the above, they are not permitted to drive in support of this project.*

4. Does the operator hold a valid driver's license? Yes No
   - Initials of Issuing Authority that this has verified validity: _____
   - Expiration date of license: _____

5. Date operator received Site Orientation including site specific policies on driving, flat tires, and sign-in/out procedures: _____

6. Does the proposed operator have experience driving on mountainous roads and through steep terrain? Yes No

7. Does the operator have Mountain Driver Training? Yes No
   - If yes, when? _____
   - *Not being trained is not a reason to stop processing the permit.*

8. Does the operator have a risk assessment? Yes No
   - The IA shall review the risk assessment for content and verify it has been completed by initialing here. _____
   - Attach a copy of the risk assessment.

Notes: Any question, except #7, answered "No" is immediate declination of the permit.
Car pooling should be used to and from the site whenever possible.
A spotter should be used while backing.

THIS DOCUMENT SHOULD BE KEPT IN YOUR VEHICLE AT ALL TIMES

SITE PERMIT
LIGHT VEHICLE OPERATOR
(RENTAL/LEASED/COMPANY OWNED PICKUPS, SUVs, AUTOMOBILES, DELIVERY VEHICLES OPERATING ON/FROM/TO THE SITE)

AUTHORIZATION TO PERFORM WORK

I CERTIFY THAT THE ABOVE OPERATOR IS FAMILIAR WITH THE WORK AREAS AND ABLE TO OPERATE THIS VEHICLE IN A SAFE MANNER SUBJECT TO THE SPECIFIED REQUIREMENTS

ISSUING AUTHORITY SIGNATURE: ……

PERMIT ISSUE DATE ……/……/…… EXPIRATION DATE ……/……/……

I UNDERSTAND THE NATURE OF THE WORK AND CERTIFY THAT ALL SAFE OPERATING PRACTICES WILL BE OBSERVED AT ALL TIMES

VEHICLE OPERATOR SIGNATURE: …… DATE ……/……/……

WORK COMPLETED

VEHICLE OPERATOR SIGNATURE: …… DATE ……/……/……

ISSUING AUTHORITY SIGNATURE: :…… DATE ……/……/……

THIS DOCUMENT SHOULD BE KEPT IN YOUR VEHICLE AT ALL TIMES

SITE PERMIT
HEAVY EQUIPMENT OPERATIONS

Permit Number:	Task of Use of Equipment (Be Specific):
Work Location:	Operator Name:
Type of Equipment:	Spotter Name:

1. Has the operator worked on the site before? Yes No

2. Date operator received Site Orientation including site specific policies on driving, flat tires, and sign-in/out procedures. _____

3. Has the operator received an Equipment Specific Performance Evaluation? Yes No
   - Provide date of evaluation and attach document. _____

4. Has a daily inspection been completed for the equipment to be used for the task? Yes No
   - Attach completed daily inspection form.

5. Has the operator received training on the Heavy Equipment Defined Practice? Yes No
   - Provide date of training: _____

6. Does the operator have a task specific risk assessment that covers the operation of Heavy Equipment for the task? Yes No
   - The IA shall review the risk assessment for content and verify it has been completed by initialing here. _____
   - Attach a copy of the risk assessment

7. A trained and competent spotter shall be used at all times during heavy equipment operations.
   - Date of spotter training: _____
   - Does the spotter understand that personnel, equipment and/or or vehicles are not allowed in the work area until approved by the equipment operator? Yes No

8. Has a task specific safety meeting been conducted with all personnel involved in the task? Yes No

Note: Any question, except #1, answered "No" is immediate declination of the permit.

AUTHORIZATION TO PERFORM WORK
I CERTIFY THAT THE ABOVE OPERATOR & SPOTTER ARE FAMILIAR WITH THE WORK AREAS AND ABLE TO OPERATE THIS EQUIPMENT IN A SAFE MANNER SUBJECT TO THE SPECIFIED REQUIREMENTS

ISSUING AUTHORITY SIGNATURE: .....

PERMIT VALID FROM: DATE ...../...../..... TO: DATE ...../...../.....

KEEP THIS PERMIT WITH YOU WHEN OPERATING THE HEAVY EQUIPMENT

SITE PERMIT
HEAVY EQUIPMENT OPERATIONS

I UNDERSTAND THE NATURE OF THE WORK AND CERTIFY THAT ALL SAFE OPERATING PRACTICES WILL BE OBSERVED AT ALL TIMES

EQUIPMENT OPERATOR SIGNATURE…….. DATE ……/……/……

SPOTTER SIGNATURE…….. DATE ……/……/……

WORK COMPLETED

EQUIPMENT OPERATOR SIGNATURE: …… DATE ……/……/……

ISSUING AUTHORITY SIGNATURE: …… DATE ……/……/……

KEEP THIS PERMIT WITH YOU WHEN OPERATING THE HEAVY EQUIPMENT

VIBRATORY SOIL COMPACTOR CHECKLIST

Operator/Inspector _____ Date _____ Time _____
Serial Number _____ Machine Hours _____

What are you inspecting?	☐	What are you looking for?	☐	Evaluator Comments
FROM THE GROUND				
Tires, Wheels, Lug Nuts, Stem Caps		Inflation, Leaks, Damage, Wear		
Leveling Blade		Excessive Wear, Damage, Leaks		
Cutting Edges (leveling blade)		Excessive Wear, Damage		
Drum Scrapers		Excessive Wear, Damage		
Drum Cooling Oil		Leaks		
Vibratory Support		Leaks		
Eccentric Weight Housing		Leaks		
Isolation Mounts		Damage, Crackling, Splitting		
Steering Cylinders / Ends		Damage, Wear / Leaks		
Steps and Handholds		Condition, Cleanliness		
Underneath Machine		Leaks, Damage		
Axles – Final Drives (axle / drum)		Leaks, Damage, Wear		
Hydraulic Tank and Filters		Fuel Level, Damage, Leaks		
Fuel Tank		Fuel Level, Damage, Leaks		
All Covers and Guards		Damage, Securely Attached		
Lights Front and Rear, Beacon		Function, Damage to Lens, Housing, or Wiring		
Battery Compartment		Cleanliness, Loose Buts and Bolts.		
ENGINE COMPARTMENT				
Engine Oil		Fluid Level		
Engine Coolant		Fluid Level		
Radiator / AC Condenser / Oil Cooler		Fin Blockage, Leaks		
All Hoses		Cracks, Wear Spots, Leaks		
Fuel Filters / Water Separator		Leaks / Drain Water		
All Belts		Tension, Wear, Cracks		
Air Filter		Service Indicator		
Overall Engine Compartment		Trash or Dirt Buildup, Leaks		
ON THE MACHINE, OUTSIDE THE CAB				
Handholds		Condition and Cleanliness		
ROPS		Damage, Loose Mounting Bolts		
Fire Extinguisher		Charge, Damage		
Windshield, Windows		Broken Glass, Cleanliness		
Windshield Wipers / Washers		Wear, Damage / Fluid Level		
Doors		Open Properly, Broken Glass		
INSIDE THE CAB				
Seat		Adjustment – Height, Weight, Able to Reach Pedals		
Seat Belt and Mounting		Damage, Wear, Adjustment, Age		
Horn, Backup Alarm, Lights		Proper Function		
Mirrors		Damage, Adjust for Best Visibility		
Gauges, Indicators, Switches, Controls		Damage, Function		
Overall Cab Interior		Cleanliness		

For more information, please refer to the Operation and Maintenance Manual or any other applicable manuals and instructions for this product.

SKID STEER AND MULTI-TERRAIN LOADERS

Operator/Inspector _____ Date _____ Time _____
Serial Number _____ Machine Hours _____

What are you inspecting?	☐	What are you looking for?	☐	Evaluator Comments
FROM THE GROUND				
Overall Machine		Loose Or Missing Nuts & Bolts, Loose Guards, Cleanliness		
Lights		Broken lamps, lenses, operation		
Grab Irons, Steps, Handholds		Condition and Cleanliness		
Tires		Inflation, Leaks, Damage, Wear, Lug nuts tight/missing		
Tracks and Drive Lugs (Multi Terrain Loader)		Damage, Deep cuts, Abrasions, Embedded foreign matter		
Sprocket Rings and Sleeves (Multi Terrain Loader)		Damage, Consult OMM for replacement		
Undercarriage and Undercarriage Wheels (Multi Terrain Loader)		Dirt, Debris, Tension, Excessive damage		
Electrical and Hydraulic Lines		Damage, Leaks		
Hydraulic Oil Level		Fluid Level		
Grease Fittings		Proper greasing		
Body		Structural damage, cracks, welds		
Work Tool		Debris between life arm and work took, Excessive damage		
ENGINE COMPARTMENT				
Engine Oil		Fluid Level		
Engine Coolant		Fluid Level		
All Hoses		Cracks, Wear Spots, Leaks		
Air Filter		Cleanliness		
All Belts		Tightness, Wear, Cracks		
Guards		In place, not missing		
Over Engine Compartment		Trash or dirt buildup, Leaks		
INSIDE THE CAB				
Gauges, lights, switches		Damage, operation		
Seat		Adjustment		
Seat Belt, Buckle & Mounting		Damage, Wear, Adjustment		
Horn, backup alarm, lights		Proper Function		
Windows and Mirrors		Condition, clean, adjust		
ROPS		Damage		
Overall Cab Interior		Cleanliness		

For more information, please refer to the Operation and Maintenance Manual or any other applicable manuals and instructions for this product.

ROTARY MIXER CHECKLIST

Operator/Inspector _____ Date _____ Time _____
Serial Number _____ Machine Hours _____

What are you inspecting?	☐	What are you looking for?	☐	Evaluator Comments
FROM THE GROUND				
Tires, Wheels, Lug Nuts, Stem Caps		Inflation, Leaks, Damage, Wear		
Drive Motor & Planetary(s)		Leaks		
Mixing Chamber		Wear, Damage, Leaks		
Emulsion Spray System / Nozzles		Leaks / Cleanliness		
Water Spray System / Nozzles		Leaks / Cleanliness		
Water Spray Pump Oil		Fluid Level		
Steering Cylinders / Rod Ends		Damage, Wear / Leaks		
Rotor Drum & Cutter Bits		Wear, Damage		
Rotor Drive Differential Oil		Fluid Level		
Rotor Bearing Reservoir Oil		Fluid Level		
Rotor Transmission Oil		Fluid Level		
Engine Air Precleaner		Cleanliness		
Radiator / Hydraulic Oil Cooler		Fin Blockage, Leaks		
Rotor Transmission/Rotor Axle Cooler (RM300 only)		Fin Blockage, Leaks		
Hydraulic Tank		Fluid Level, Damage, Leaks		
Lights: Front, Rear		Function, Damage to Lens, Housing or Wiring		
Battery Compartment		Cleanliness, Loose Nuts & Bolts		
Steps and Handholds		Condition, Cleanliness		
All Covers and Guards		Damage, Securely Attached		
Underneath Machine		Leaks, Damage		
ENGINE COMPARTMENT				
Engine Oil		Fluid Level		
Engine Coolant		Fluid Level		
Air Filter		Service Indicator		
All Hoses		Cracks, Wear Spots, Leaks		
All Belts		Tension, Wear, Cracks		
Overall Engine Compartment		Trash or Dirt Buildup, Leaks		
ON THE MACHINE, OUTSIDE OF CAB				
Handholds		Condition and Cleanliness		
ROPS / FOPS		Damage, Loose Mounting Bolts		
Fire Extinguisher		Charge, Damage		
Windshield, Windows		Broken Glass, Cleanliness		
Windshield Wipers / Washers		Wear, Damage / Fluid Level		
Doors		Open properly, broken glass		
OPERATOR STATION				
Horn, Backup Alarm, Lights		Proper Function		
Seat		Adjustment		
Seat Belt & Mounting		Damage, Wear, Adjustment		
Cab Air Filter		Clean		
Mirrors		Damage, Cleanliness		
Gauges, Indicators, Switches, Controls		Damage, Cleanliness, Operational		
Overall Cab		Cleanliness		

For more information, please refer to the Operation and Maintenance Manual or any other applicable manuals and instructions for this product.

RENTAL & LEASED VEHICLE CHECKLIST

Operator/Inspector _____ Date _____ Time _____
Serial Number _____ Machine Hours _____

What are you inspecting?	☐	What are you looking for?	☐	Evaluator Comments
DRIVER/PASSENGER SIDE				
External Side Mirrors (Right and Left)		Cracks, Broken, Working Condition, Properly placed		
Tires		Properly Inflated, Adequate tread		
Windows		Broken, Cracked, Missing, Cleanliness		
REAR OF VEHICLE				
Bumper		Loose, Missing, Damage		
License Plate		Current sticker, Cleanliness, Properly attached		
Inside of trunk or truck bed		Spare tire, Jack, Wrench, Free of debris, Cleanliness		
Brake lights		Tested and working properly, Broken		
Rear Window		Broken, Cracked, Missing, Cleanliness		
FRONT OF VEHICLE				
Headlights (normal and bright)		Tested and working properly, Broken		
Turn Signals		Tested and working properly, Broken		
Bumper		Securely attached		
Windshield		Broken, cracked, missing, cleanliness		
Windshield wiper blades		Properly installed, damaged, broken, proper working order		
UNDER THE HOOD				
Battery		Properly secured, cables secured, working properly		
Air Filter		Cleanliness		
Leaks		Cracks in hoses, Fluid on ground, Leaks from filters		
Windshield Fluid		Proper fluid level		
Transmission Fluid		Proper fluid level		
Engine Coolant		Proper coolant level		
Engine Oil		Proper oil level		
INSIDE CAR				
Overall Interior		Cleanliness & free of debris		
Parking Brake		Tested on grade and working properly		
Horn		Tested and working properly		
Seat Belts		Tested and working properly, frays, cuts, tears, snags, roping		
Gauges		Working condition		
Rearview Mirror		Properly placed, working condition, Cleanliness		
IF REQUIRED				
Wheel Chocks		Available, good working condition, correct size of vehicle		
Light Beacon		Tested and working properly		
Whip Flag		Available, installed and in good working condition		

For more information, please refer to the Operation and Maintenance Manual or any other applicable manuals and instructions for this product.

PNEUMATIC SOIL COMPACTOR INSPECTION CHECKLIST

Operator/Inspector _____ Date _____ Time _____
Serial Number _____ Machine Hours _____

What are you inspecting?	☐	What are you looking for?	☐	Evaluator Comments
FROM THE GROUND				
Tires, Wheels, Lug Nuts, Stem Caps		Inflation, Leaks, Damage, Wear		
Ballast Liquid / Solid		Leaks / Loose Cover		
Tire Mat, Tire Scrapers		Excessive Wear, Damage		
Water Spray System / Nozzles		Fluid Level, Leaks / Cleanliness		
Air Tank		Leaks / Drain Water		
Air Compressor Filter		Cleanliness, Damage		
Air Compressor Oil		Fluid Level		
Oscillating and Steering Bar		Damage, Wear / Leaks		
Steering Cylinders / Ends		Damage, Wear / Leaks		
Steps and Handholds		Condition, Cleanliness		
Underneath Machine		Leaks, Damage		
Axles		Leaks		
Hydraulic Tank		Fluid Level, Damage, Leaks		
Fuel Tank / Drain Valve		Fuel Level, Damage, Leaks / drain water		
All Covers, Guards, Tire Skirt (if equipped)		Damage, Securely Attached		
Lights, Front and Rear		Function, Damage to Lens, Housing or Wiring		
Battery Compartment		Cleanliness, Loose Nuts & Bolts		
ENGINE COMPARTMENT				
Engine Oil, Engine Coolant		Fluid Level		
Radiator / Hydraulic Oil Cooler		Fin Blockage, Leaks		
All Hoses		Cracks, Wear Spots, Leaks		
Fuel Filters / Water Separator		Leaks / Drain Water		
All Belts		Tension, Wear, Cracks		
Air Filter		Service Indicator		
Overall Engine Compartment		Trash or Dirt Buildup, Leaks		
ON THE MACHINE				
Handholds		Condition and Cleanliness		
ROPS and Canopy (if equipped)		Damage, Loose Mounting Bolts		
Fire Extinguisher		Charge, Damage		
OPERATOR STATION				
Seat		Adjustment-Height, Weight, Able to Reach Pedals		
Seat Belt & Mounting		Damage, Wear, Adjustment, Age		
Platform Swivel (if equipped) or Sliding Station (if equipped)		Locked Positions		
Horn, Backup Alarm, Lights		Proper Function		
Mirrors / Visual Aids		Damage, Adjust for Best Visibility		
Gauges, Indicators, Switches, Controls		Damage, Function		
Windshield, Windows (if equipped with Cab)		Broken Glass, Cleanliness		
Windshield Wipers/Washers (if equipped with Cab)		Wear, Damage / Fluid Level		
Overall Cab Area		Cleanliness		

For more information, please refer to the Operation and Maintenance Manual or any other applicable manuals and instructions for this product.

OFF HIGHWAY TRUCKS INSPECTION CHECKLIST

Operator/Inspector _____ Date _____ Time _____
Serial Number _____ Machine Hours _____

What are you inspecting?	☐	What are you looking for?	☐	Evaluator Comments
FROM THE GROUND				
Tires, Wheels, Stem Caps		Inflation, Leaks, Damage, Wear		
Duo-cone seal area		Damage, Leaks		
Underneath Machine		Leaks, Damage		
Differentials, Brakes, Transmission		Leaks		
Front Suspension Cylinders		Leaks, Proper Cylinder Height		
Engine Area		Leaks, Damage, Belt / Hose Condition		
Engine Oil		Fluid Level (Record Oil Additions if Equipped with Oil Renewal System)		
Fuel Filters / Water Separator		Leaks / Drain Water (if equipped)		
Fuel Tank		Mounting Brackets, Welds, Leaks, Drain Water and sediment		
Hoist Cylinders		Wear, Damage, Leaks		
Dump Body and Truck Frame		Damage, Wear, Distortion, Presence of Frame and Body Support Pads		
Rear Tire Rock Ejectors		Free Movement		
Primary Air Tank		Drain Moisture		
Steps & Handholds		Condition & Cleanliness		
Torque Converter Case		Transmission and Torque Converter Fluid Level, Damage, Leaks		
Hoist, Converter, and Brake Oil Tank		Fluid Level, Damage, Leaks		
Steering Oil Tank		Fluid Level, Damage, Leaks		
Transmission Oil Tank		Fluid Level, Damage, Leaks		
Lights, Front and Rear		Function, Damage to Lens, Housing or Wiring		
Radiator		Debris between Radiator and Grill, Fin Blockage, Leaks		
ROPS		Damage, Loose Mounting Bolts		
ENGINE COMPARTMENT (TOP PLATFORM)				
Engine Oil		Fluid Level (Record Oil Additions if Equipped with Oil Renewal System)		
Engine Coolant		Fluid Level (jacket water, after-cooler)		
Radiator		Fin Blockage, Leaks		
All Hoses		Cracks, Wear Spots, Leaks		
All Belts		Tension, Wear, Cracks		
Overall Engine Compartment		Trash or Dirt Buildup, Leaks		
ON THE MACHINE, OUTSIDE OF THE CAB (TOP PLATFORM)				
Handholds		Condition and Cleanliness		
Mirrors		Damage, Adjust for Best Visibility		
ROPS		Damage, Loose Mounting Bolts		
Dump Body above Platform		Damage, Wear, Distortion		
Pre-Cleaner		Debris		
Air Filter		Restriction Indicator, Dust Valves Unplugged		
Steering Oil Tank		Fluid Level, Damage, Leaks		
Fire Extinguisher		Charge, Damage		
Windshield, Windows		Broken Glass, Cleanliness		
Windshield Wipers / Washers		Wear, Damage / Fluid Level		
Doors		Open properly, broken glass		

OFF HIGHWAY TRUCKS INSPECTION CHECKLIST

What are you inspecting?	□	What are you looking for?	□	Evaluator Comments
Air Conditioner Filter		Dirt, Dust		
Primary Air Tank		Drain Moisture		
Secondary Air Tank		Drain		
Battery Compartment		Cleanliness, Loose Nuts & Bolts		
INSIDE THE CAB				
Seat		Adjustment, Able to Reach Pedals		
Seat Belt & Mounting		Damage, Wear, Adjustment, Age		
Horn, Backup Alarm, Lights		Proper Function		
Mirrors		Damage, Adjust for Best Visibility		
Recirculation Cab Air Filter		Dirt, Dust		
Gauges, indicators, Switches, Controls		Damage, function		
Overall Cab Interior		Cleanliness		

For more information, please refer to the Operation and Maintenance Manual or any other applicable manuals and instructions for this product.

MOTOR GRADER INSPECTION CHECKLIST

Operator/Inspector _____ Date _____ Time _____
Serial Number _____ Machine Hours _____

What are you inspecting?	☐	What are you looking for?	☐	Evaluator Comments
FROM THE GROUND				
Steps and Handholds		Condition and Cleanliness		
Tires, Lug Nuts, Brakes		Inflation, Damage, Stem Covers		
Tandem Housings		Trash, Dirt Buildup, Leaks		
Articulation Area		Trash or Dirt Buildup		
Air Reservoir		Drain Water and Sediment		
Transmission		Leaks		
Underneath of Machine		Differential and Tandem Leaks		
Hydraulic Oil Tank		Fluid Level, Damage, Leaks		
Covers and Guards		Damage Secured		
Batteries and Hold Downs		Cleanliness, Loose Bolts and Nuts		
Fuel Tank		Fuel Level, Damage, Leaks; Drain Water and Sediment		
Hydraulic Cylinders, Rubes, Hoses and Fittings		Damage Leaks		
Circle Drive		Leaks		
Front Wheel Spindle Bearings		Leaks		
All Wheel Drive Motors		Damage, Leaks		
Blade Linkage		Damage, Loose or Missing Bolts		
Blade and End Bits		Excessive Wear or Damage		
Overall Machine		Loose or Missing Nuts and Bolts, Loose Guards, Cleanliness		
ENGINE COMPARTMENT				
Engine Oil		Fluid Level		
Engine Coolant		Fluid Level		
Engine Pre-Cleaner		Dirt Buildup		
Air Filter		Restriction Indicator		
Radiator		Debris, Damage, Leaks		
All Hoses		Cracks, Wear Spot, Leaks		
All Belts		Tightness, Wear, Cracks		
Overall Engine Compartment		Trash or Dirt Buildup, Leaks		
ON THE MACHINE				
Light Lenses		Damage, Cleanliness		
Mirrors, Windows		Damage, Cleanliness		
Windshield Wipers and Washers		Wear, Damage, Fluid Level		
INSIDE THE CAB				
ROPS		Damage, Cracks		
Seat		Adjustment, Pedal Travel		
Seat Belt and Mounting		Damage, Wear, Adjustment		
Fire Extinguisher		Charge, Damage		
Horn, Backup Alarm, Lights		Proper Function		
Controls, Gauge Lenses		Damage, Cleanliness, Operational		
Overall Cab Interior		Cleanliness		

For more information, please refer to the Operation and Maintenance Manual or any other applicable manuals and instructions for this product.

LANDFILL EXCAVATOR CHECKLIST

Operator/Inspector _____ Date _____ Time _____
Serial Number _____ Machine Hours _____

What are you inspecting?	☐	What are you looking for?	☐	Evaluator Comments
FROM THE GROUND				
Blade Cutting Edge		Excessive Wear or Damage		
Blade Cylinders		Excessive Wear, Damage, Leaks		
Wheels, Tips, Brakes		Damage, Packing, Wear		
Underneath Of Machine		Final Drive Leaks, Damage		
Steps and Handholds		Condition and Cleanliness		
Fuel Tank		Fuel Level, Damage, Leaks		
Hydraulic Oil Tank		Fluid Level, Damage, Leaks		
Pivot Shaft		Oil Level		
Batteries & Hold Downs		Cleanliness, Loose Bolts & Nuts		
Overall Machine		Loose or Missing Nuts & Bolts, Loose Guards, Cleanliness		
ENGINE COMPARTMENT				
Engine Oil		Fluid Level		
Engine Coolant		Fluid Level		
Air Filter		Restriction Indicator		
Radiator		Debris, Damage, Leaks		
All Hoses		Cracks, Wear Spots, Leaks		
All Belts		Tightness, Wear, Cracks		
Overall Engine Compartment		Trash or Dirt Buildup, Leaks		
ON THE MACHINE, OUTSIDE OF CAB				
Fire Extinguisher		Charge, Damage		
Lights		Damage, Operation		
Mirrors		Damage		
Windshield Wipers & Washers		Wear, Damage, Fluid Level		
INSIDE THE CAB				
ROPS		Damage		
Seat		Adjustment, Brake Travel		
Seat Belt & Mounting		Damage, Wear, Adjustment		
Horn, backup alarm, lights		Proper Function		
Overall Cab Interior		Cleanliness		

For more information, please refer to the Operation and Maintenance Manual or any other applicable manuals and instructions for this product.

HYDRAULIC EXCAVATOR INSPECTION CHECKLIST

Operator/Inspector _____ Date _____ Time _____
Serial Number _____ Machine Hours _____

What are you inspecting?	☐	What are you looking for?	☐	Evaluator Comments
FROM THE GROUND				
Bucket, GET		Excessive Wear or Damage, Cracks		
Bucket Cylinder & Linkage		Excessive Wear, Damage, Leaks, Lubricate		
Stick, Cylinder		Wear, Damage, Leaks, Lubricate		
Boom, Cylinders		Wear, Damage, Leaks, Lubricate		
Underneath Machine		Final Drive Leaks, Swing Drive Leaks, Damage		
Carbody		Cracks, Damage		
Undercarriage		Wear, Damage, Tension		
Steps and Handholds		Condition and Cleanliness		
Batteries & Hold Downs		Cleanliness, Loose Bolts & Nuts		
Windshield Wipers & Washers		Wear, Damage, Fluid Level		
Fire Extinguisher		Charge, Damage		
Engine Coolant		Fluid Level		
Primary/Secondary Fuel Filters		Leaks, Drain Water Separator		
Air Filter		Restriction Indicator		
Hydraulic Oil Tank		Fluid Level, Damage, Leaks		
Hydraulic Oil Filter		Leaks		
Radiator		Fin Blockage, Leaks		
Hydraulic Oil Cooler		Fin Blockage, Leaks		
AC Condenser		Fin Blockage, Leaks		
Lights and Mirrors		Damage		
Engine Oil Filter		Leaks		
Hydraulic Oil Filter		Leaks		
Overall Machine		Loose/Missing Nuts, Bolts, Loose Guards, Cleanliness		
ENGINE COMPARTMENT				
Engine Oil		Fluid Level		
Swing Gear Oil		Fluid Level, Leaks		
Swing Drive Pinion Grease		Water		
Fuel Tank		Fuel Level, Damage, Leaks		
All Hoses		Cracks, Wear Spots, Leaks		
All Belts		Tightness, Wear, Cracks		
Overall Engine Compartment		Trash or Dirt Buildup, Leaks		
INSIDE THE CAB				
Seat		Adjustment		
Seat belt & Mounting		Damage, Wear, Adjustment, Age		
Horn, Travel Alarm, Lights		Proper Function		
Indicators		Proper Function		
Monitor Panel		Proper Function		
Switches		Proper Function		
Travel Controls		Correct Operation		
Mirrors		Adjustment		
Heating and Cooling System		Proper Function		
ROPS		Damage, Loose Mounting Bolts		
Overall Cab Interior		Cleanliness		

For more information, please refer to the Operation and Maintenance Manual or any other applicable manuals and instructions for this product.

FORKLIFTS CHECKLIST

Operator/Inspector _____ Date _____ Time _____
Serial Number _____ Machine Hours _____

What are you inspecting?	☐	What are you looking for?	☐	Evaluator Comments
WITH ENGINE OFF				
Fuel		Leaks, Level		
Hydraulic Oil		Leaks, Level		
Engine Oil		Leaks, Level		
Radiator Coolant		Leaks, Level		
Transmission Fluid		Leaks, Level		
Tires		Condition and Pressure		
Forks, Top Clip Retaining Pin and Heel		Check Condition		
Hydraulic Hoses, Mast Chains, Cables and Stops		Visual Check, Leaks, Damage		
Overhead Guard		Attached, Damage		
Safety Warnings		Attached, Visible, Legible (Refer to Parts Manual for Location)		
Battery		Check Water/Electrolyte Level and Charge		
All Engine Belts		Cracked, Damage, Rips, Visual check		
Engine Air Cleaner		Squeeze Rubber Dirt Trap or Check the Restriction Alarm (if equipped)		
Fuel Sedimentor (Diesel)		Condition		
Operator's Manual		In Cab		
Nameplate		Attached and Information Matches Model, Serial Number and Attachments		
Seat Belt, Buckle, Retractor		Condition, Torn, Ripped, Damage to housing		
Hood Latch		Adjusted and Securely Fastened		
Brake Fluid		Leaks, Level		
WITH ENGINE ON				
Accelerator or Direction Control Pedal		Functioning Smoothly and Properly		
Service Brake		Functioning Smoothly and Properly		
Parking Brake		Functioning Smoothly and Properly		
Steering Operation		Functioning Smoothly and Properly		
Drive Control – Forward / Reverse		Functioning Smoothly and Properly		
Tilt Control – Forward and Back		Functioning Smoothly and Properly		
Hoist and Lowering Control		Functioning Smoothly and Properly		
Attachment Control		Operation		
Horn and Lights		Functioning Properly		
Cab (if equipped) – Heater, Defroster, Wipers		Functioning Properly		
Gauges: Ammeter, Engine Oil Pressure, Hour Meter, Fuel Level, Temperature, Instrument Monitors		Functioning Properly		

For more information, please refer to the Operation and Maintenance Manual or any other applicable manuals and instructions for this product.

BACKHOE LOADER INSPECTION CHECKLIST

Operator/Inspector _____ Date _____ Time _____
Serial Number _____ Machine Hours _____

What are you inspecting?	☐	What are you looking for?	☐	Evaluator Comments
FROM THE GROUND				
Loader Bucket, GET, Retainers		Wear, Damage, Cracks		
Loader Bucket Cylinder and Linkage		Excessive Wear, Damage, Leaks		
BH Bucket, GET, Retainers		Wear, Damage, Cracks		
BH Bucket Cylinder and Linkage		Excessive Wear, Damage, Leaks		
BH Stick		Damage, Cracks		
BH Boom, Cylinders		Wear, Damage, Leaks		
BH Pivot		Wear, Damage, Leaks, Grease		
Underneath Machine		Leaks, Damage, Loose Bolts		
Frame		Cracks, Damage		
Steps, Handholds		Condition and Cleanliness		
Lights		Damage, Cleanliness, Direction		
Overall Machine		Loose Or Missing Nuts Bolts, Loose Guards, Cleanliness		
ENGINE COMPARTMENT				
Windshield Wipers and Washers		Wear, Damage, Fluid Level		
Engine Coolant		Fluid Level		
Radiator		Fin Blockage, Leaks		
Hydraulic Oil Cooler		Debris, Leaks		
Hydraulic Oil Tank		Fluid Level, Damage, Leaks		
Fuel Tank		Fuel Level, Damage, Leaks		
Fire Extinguisher		Charge, Damage		
Mirrors		Damage, Cleanliness		
ON THE MACHINE				
Engine Oil		Fluid Level		
All Hoses		Cracks, Wear Spots, Leaks		
All Belts		Tightness, Wear, Cracks		
Batteries and Hold Downs		Cleanliness, Loose Bolts and Nuts		
Air Filter		Restriction Indicator		
Overall Engine Compartment		Trash or Dirt Buildup, Leaks		
INSIDE THE CAB				
Seat		Adjustment		
Seat Belt and Mounting		Damage, Wear, Adjustment		
Horn, Backup Alarm, Lights		Proper Function		
Overall Cab Interior		Cleanliness		

For more information, please refer to the Operation and Maintenance Manual or any other applicable manuals and instructions for this product.

AERIAL LIFT CHECKLIST

Operator/Inspector _____ Date _____ Time _____
Serial Number _____ Machine Hours _____

What are you inspecting?	☐	What are you looking for?	☐	Evaluator Comments
INSPECT ON DAILY BASIS				
Operation Maintenance Manual		Intact with the machine, legible		
Operation and emergency controls		Damage, Missing, Properly working		
Personal Protective Equipment		Proper PPE is used during operation		
Guardrails / Containment System		Damage, Broken Welds, Intact		
Mechanical Components		Air Lines, Hydraulic hoses, couplers, and electrical lines are in working condition		
Overall Structure		Loose or missing parts		
Safety Decals		All safety decals are intact and legible		
Wheels/Tires		Proper inflation		
Outriggers		Structures used to stabilize the equipment are working properly		
Other Items		Read and understand original manufactures OMM for other items to be inspected before daily use		
WORK ENVIRONMENT INSPECTION				
Operating Surface		Obstructions or substantial elevation changes, holds, drop-offs, inadequate surface support, etc		
Working Area		Debris/Clutter, Persons working around machine		
Obstructions/Weather Conditions		Obstructions above machine (Min. 10 feet from power lines), Wind (Do not operate in wind greater than 25 mph)		
MACHINE OPERATION				
Fall Protection		ALWAYS use harness and lanyard tied-off to the manufacture's directed tie-off point on machine		
Controls		Platform controls are within easy reach of operator. Lower level controls are never operated unless permission has been obtained from the operator		
Guardrails/Outriggers/Brakes		All guardrails and gates are being used, outriggers in place, and brakes are set		
Loads		All loads are distributed and do not exceed rated capacity		
Work Position		Operator is standing firmly on floor, do not sit, never use ladder or climbing devices in an elevated work position. Never tie off to adjacent structures while working from an aerial platform		

For more information, please refer to the Operation and Maintenance Manual or any other applicable manuals and instructions for this product.

WHEEL LOADERS CHECKLIST

Operator/Inspector _____ Date _____ Time _____
Serial Number _____ Machine Hours _____

What are you inspecting?	☐	What are you looking for?	☐	Evaluator Comments
FROM THE GROUND				
Tires, Wheels, Lug Nuts, Stem Caps		Inflation, Leaks, Damage, Wear		
Bucket, Cutting Edge, Moldboard		Excessive Wear, Damage		
Bucket Lift and Tilt Cylinders, Lines, Hoses		Excessive Wear, Damage, Leaks		
Loader Frame, Arms		Excessive Wear, Damage		
Underneath Machine		Leaks, Damage		
Transmission, Transfer Case		Leaks		
Steps and Handhelds		Condition Cleanliness		
Fuel Tank		Fuel Level, Damage, Leaks		
Differential and Final Drive Oil		Fluid Level		
Air Tank (if equipped w/ air brakes)		Drain Moisture		
Axles- Final Drives, Differentials, Brakes, Duo-Cone Seals		Leaks, Damage, Wear		
Hydraulic Tank		Fluid Level, Damage, Leaks		
Transmission Oil		Fluid Level		
Lights, Front and Rear		Function, Damage to Lens, Housing, or Wiring		
Battery Compartment		Cleanliness, Loose Nuts or Bolts		
ENGINE COMPARTMENT				
Engine Oil		Fluid Level		
Engine Coolant		Fluid Level		
Radiator		Debris, Damage, Leaks		
All Hoses		Cracks, Wear Spots, Leaks		
Fuel Filters/ Water Separator		Leaks / Drain Water (if equipped)		
All Belts		Tension, Wear, Cracks		
Air Filter		Restriction Indicator		
Overall Engine Compartment		Trash or Dirt Buildup, Leaks		
ON THE MACHINE				
Handhelds		Condition and Cleanliness		
ROPS		Damage, Loose Mounting Bolts		
Fire Extinguisher / System		Charge, Damage		
Windshield Windows		Broken Glass, Cleanliness		
Windshield Wipers / Washers		Wear, Damage / Fluid Level		
Doors		Open Property, Broken Glass		
INSIDE THE CAB				
Seat		Adjustment-Height, Weight, Able to Reach Pedals		
Seat Belt and Mounting		Damage, Wear, Adjustment, Age		
Horn, Backup Alarm, Lights		Proper Function		
Mirrors		Damage, Adjust for Best Visibility		
Cab Air Filter		Dirt, Dust		
Gauges, Indicators, Switches, Controls		Damage, Function		
Overall Cab Interior		Cleanliness		

For more information, please refer to the Operation and Maintenance Manual or any other applicable manuals and instructions for this product.

2017 ANNUAL ROAD OPERATING PLAN
ATTACHMENT A: TRAFFIC MANAGEMENT PLAN

APPENDIX D: DRIVING POLICY

Leviathan Mine
Alpine County, California

April 2017

APPENDIX D
DRIVING POLICY
Leviathan Mine Site
Alpine County, California

Technical Memorandum

To: All Leviathan Mine Atlantic Richfield Contractors and Subcontractors

Project: 0013091132

From: Marc R. Lombardi, AMEC

cc: Tony Brown, Atlant ic Richfield
Jerry Johnson, JCMC
Phil Thompson, Copper Environmental
Dave McCarthy, Copper Environmental
Mike Johnstone, Copper Environmental
Randy Miller, Broadbent & Associates
Jeremy Boucher, Broadbent & Associates
John Pottenburgh, Syblon Reid Contractors

Tel: (916) 636-3200

Fax: (916) 636-3208

Date: February 14, 2013

Subject: Revised Leviathan Mine Project Driving Policy

On behalf of Atlantic Richfield (AR), AMEC Environment & Infrastructure Inc. (AMEC) has prepared this Technical Memorandum (Memorandum) which describes the Revised Leviathan Mine Driving Policy. This is a site specific policy which was developed to address some of the additional hazards posed by night time travel on rural and mountainous roads. This memorandum also provides some general tips for safe driving during dawn, dusk and night time conditions. This site specific policy supplements the requirements of BP Remediation Management's (RM) Driving and Transportation Risk Management Defined Practice of which all contractors and subcontractors should be familiar with and consult for additional driving requirements. It is also recognized that each RM Control of Work (CoW) Contractor has their own controlling documents that should be equivalent to, or more stringent than, RM's Control of Work Defined Practices. Personnel should follow the more stringent requirements.

Leviathan Mine Site Specific Travel Requirements

1. Personnel traveling to and from the Leviathan Mi ne site or the Minden/ Gardnerville area, requiring transit on mountainous two lane roads, undivided rural highways, and/or dirt roads should plan their travel so that they do not leave their place of origin

AMEC Environment & Infrastructure, Inc.
10670 White Rock Road, Suite 100
Rancho Cordova, CA 95670-6032
USA
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amec.com

(i.e. –house, office, hotel, site, etc.) more than one-half (1/2) hour before sunrise or drive on such a road more than 1/2 hour after sunset prior to reaching their destination.

2. Personnel should use published sunrise and sunse t times corresponding to their place of origin/departure.

3. Examples of roads where this policy would apply include, but are not limited to:

   - Highway 50 - between Pollock Pines, California and Carson City, Nevada.
   - Highway 88 – entire length
   - Highway 89 – entire length
   - Highway 4 – entire length
   - Highway 395 – south of Minden/Gardnerville to Mamm oth Lakes
   - Leviathan Mine Road

4. Monday morning site start times will be adjusted monthly to allow travel time from home without having to leave more than an hour before sunrise.

5. Occasional site personnel and subcontractors mus t schedule their travel time so as not to drive more than ½-half hour before sunrise or more than ½-half hour after sunset, if they will be driving on undivided highways, two lane or dirt mountainous roads. If this causes personnel to miss the morning safety meeting, Michelle Souza, Site Coordinator, should be advised.

Driving Tips: The following tips can help you to stay safer while driving at night, dusk and dawn.

Driving at night, dusk and dawn is more dangerous than daytime driving. According to the National Safety Council traffic death rates are three times greater at these times than during the day. Aging affects ability to focus and reduces depth perception and reaction times. Remember you must be fit for duty and wear seat belts at all times when working for AMEC in support of the Leviathan Mine. This includes travel to and from the site to your home or other work sites

- Keep your windshield (inside and out) and lights (both head and tail lights) clean.
- If you have a car that does not have daytime runni ng lights, be sure to put on your headlights as soon as you start your vehicle. This makes it easier for other drivers to see your car.

- Make sure headlights are properly aimed. You may blind oncoming drivers and reduce your ability to see the road properly.
- Reduce your speed and increase your following distance at night.
- Try to travel well-lit roads. Keep your speed lower on dark roads to avoid overdriving your headlights.
- If traveling in an area with animal activity, watch the side of the road and slow down immediately if animals are on the shoulder.
- If oncoming vehicles fail to lower their headlight beams avoid glare from light by focusing on the right edge of the road as a steering guide.
- If cars behind you are following too closely or if glare from their headlights is bothering you, pull over and allow them to pass you.
- If you wear glasses ask your eye-care provider about special anti-glare coatings.
- Have an eye exam yearly to evaluate for conditions such as cataracts that can affect night time driving.
- When driving at night make frequent stops for light snacks and exercise. If you become too tired to drive find a place to stop and rest.
- Limit driving to daytime hours when it becomes too difficult to drive safely at night.
- Do not use your cell phone, for any purpose, while driving.
- Dim your interior dashboard lights to improve your night vision.

2017 ANNUAL ROAD OPERATING PLAN

ATTACHMENT B: SIGNAGE PLAN

Leviathan Mine
Alpine County, California

April 2017

2017 SIGNAGE PLAN
REVISION 5

Leviathan Mine
Alpine County, California

Prepared for:
Atlantic Richfield Company
La Palma, California

Originally Prepared by:
amec
AMEC Environment & Infrastructure, Inc.
Rancho Cordova, California 95670

2017 Revision by:
Copper Environmental Consulting
406 East Park Avenue, Suite 2
Anaconda, Montana 59711

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April 2017

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APPENDIX

1.0 INTRODUCTION

On behalf of Atlantic Richfield Company (Atlantic Richfield), Copper Environmental Consulting (CEC) has prepared this Signage Plan to support ongoing U. S. Environmental Protection Agency (U.S. EPA) required Removal Action (RA) and Remedial Investigation (RI) activities at the Leviathan Mine Site (site) located in Alpine County, California (CA). This Signage Plan has been prepared to promote safe travel on Leviathan Mine Road (Forest Service Road 10052; Figure 1) by the Atlantic Richfield project workforce (all Atlantic Richfield employees, contractors, and subcontractors working at the site) throughout the project. This document aims to ensure personnel travel and the shipment of materials and goods to and from the site associated with Atlantic Richfield project activities will be performed safely while minimizing impact to the surrounding community, including public use of the roads. This Signage Plan documents the existing signs and mirrors (signage) installed and maintained along Leviathan Mine Road by Atlantic Richfield. It also provides guidelines for the installation of additional signage that may be necessary to mitigate new risks posed to traffic accessing the site. All signage installation by Atlantic Richfield has been performed in accordance with a Road Use Permit issued to Atlantic Richfield by the United States Department of Agriculture (USDA) Forest Service on July 16, 2013.

1.1 Health and Safety Considerations

Atlantic Richfield regards the health and safety of their project workforce, the public, the surrounding community, and the environment as the highest priority on any project.

The primary safety document for implementation of all work at the site will be the *Leviathan Mine Site Health, Safety, Security, and Environment Program Document* (HSSE Program Document)[1]. In addition, all contractors working at the site are required to have their own Task Specific Health and Safety Plan (TSHASP) prepared consistent with 29 Code of Federal Regulations (CFR) 1910.120 and California Code of Regulations (CCR) Title 8, Section 5192. The HSSE Program Document and TSHASPs are the primary safety documents for implementation of all work conducted at the site by contractors and subcontractors. These documents will be referred to for all general safety issues involving implementation of the scope of work described herein with this Signage Plan.

[1] The HSSE Program Document and TSHAPs, along with any revisions, will be available for review on-site in the Administration Office Trailer.

Additionally, the Traffic Management Plan[2] sets forth the guidelines for all vehicles including medium (single-unit) to heavy duty (tractor-trailer) trucks accessing the site. These guidelines will be followed throughout the project.

1.2 Mandatory Requirements for Vehicles and Personnel

In addition to the above health and safety considerations, the following are mandatory requirements that are to be followed during installation or maintenance of signage:

- Hazard Identification and Task Risk Assessment practices that are consistent with Remediation Management's (RM's) Hazard Identification and Task Risk Assessment Defined Practice, including Field Authorization Forms;
- Driving Safety work practices that are consistent with RM's Driving Safety Defined Practice, including the site permit (Light Vehicle Operator);
- Fit for Duty work practices that are consistent with RM's Fit for Duty Defined Practice;
- Simultaneous Operations (SIMOPS) work practices that are consistent with RM's SIMOPS Defined Practice;
- Job Zone Control and Traffic Management work practices that are consistent with RM's Job Zone Control and Traffic Management Defined Practice;
- Heavy Equipment work practices that are consistent with RM's Heavy Equipment Defined Practice, including the site permit (Heavy Equipment Operations);
- Transportation and Journey Assessment work practices that are consistent with RM's Transportation and Journey Assessment Defined Practice;
- Management of Change (MoC) work practices that are consistent with RM's MoC Defined Practice;
- Control of Work Permits including: work at heights, ground disturbance, and hot work;
- Road Use Permit – all vehicles are required to carry a copy of page one of the signed United States Department of Agriculture (USDA) Forest Service Road Use Permit;

[2] The Traffic Management Plan, along with any revisions, will be available for review on-site in the Administration Office Trailer.

- Limited Dust Policy – regardless of the posted recommended speeds, all vehicles are required to be respectful of neighbors, off-road enthusiasts, hikers, etc. and minimize vehicle dust generation; and
- Speed Policy – although the posted speeds are only recommended, all vehicles are required to keep speed below the posted speed limit and only drive as fast as conditions safely allow.

General driving safety requirements are provided in the HSSE Program Document. Work practices, which are consistent with RM's Defined Practices, are included in each contractor's TSHASP.

2.0 BACKGROUND

Access to the site is provided by Leviathan Mine Road (also known as Forest Service Road 10052), which is an unpaved road that connects to CA State Route 89 (SR 89) over Monitor Pass to United States Highway 395 (US 395) in the Double Spring Flat area between Gardnerville, Nevada (NV) and Topaz Lake, NV (Figure 1). Leviathan Mine Road extends approximately nine miles east of the site to US 395 (NV Access Route) and approximately three miles west of the site to SR 89 (CA Access Route). Leviathan Mine Road skirts the eastern boundary of the site with access through the site via Forest Service Road 10348.

The USDA Forest Service Road Use Permit issued to Atlantic Richfield grants use of the Leviathan Mine Road and other related road segments for commercial hauling and personnel transport at the Leviathan Mine Site through December 31, 2018. As specified in the Road Use Permit, Atlantic Richfield will perform road maintenance activities in accordance with the Leviathan Mine Road Maintenance and Resurfacing Specifications.

Activities related to the installation and maintenance of signs or mirrors (signage) will be conducted in accordance with the Road Use Permit and the Leviathan Mine Road Maintenance and Resurfacing Specifications. A copy of the Road Use Permit and the Leviathan Mine Road Maintenance and Resurfacing Specifications is included in the Traffic Management Plan.

3.0 LEVIATHAN MINE ROAD SIGNAGE

The following subsections document the existing signage installed along Leviathan Mine Road by Atlantic Richfield and describe the anticipated activities necessary for maintaining the signage.

3.1 Placement of Existing Signage

Approximate signage locations for the NV and CA Access Routes are shown in Tables 1 and 2, respectively. Figure 2 depicts the signs that are referenced in the tables and Appendix A contains specifications of signs from the Manual on Uniform Traffic Control Devices (MUTCD)[3]. Signs not included in the MUTCD meet the specifications as directed by the USDA Forest Service in general accordance with the Sign and Poster Guidelines for the Forest Service (Forest Service Guidelines)[4].

3.2 Maintenance of Signage

Ongoing monitoring and maintenance of the signs and mirrors will occur during the Atlantic Richfield Work Season (ARWS), which is the period from June 1 through September 30, and may extend into the Limited Access Season (LAS), which is the period from October 1 through May 31. Functional maintenance will be used to determine if signage needs to be changed to meet current traffic conditions. Physical maintenance will be performed to retain the stability, legibility and visibility of the signage. All traffic signs will be kept properly positioned, clean, and legible, and will have adequate retro-reflectivity for day or night travel by using high intensity (Type III and Type IV) sheeting. All mirrors will be kept properly positioned and clean. Damaged or deteriorated signs and mirrors will be replaced. Personnel who travel the roadways are encouraged to report any damaged, deteriorated, or obscured signage at the first opportunity to the CEC or Broadbent Project Manager.

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[3] United States Department of Transportation Federal Highway Administration, Manual on Uniform Traffic Control Devices for Streets and Highways, 2009 Edition.

[4] USDA Forest Service, Engineering Staff, Washington D.C. Sign and Poster Guidelines for the Forest Service, EM 7100-15, January 2010.

4.0 GUIDELINES FOR ADDITIONAL SIGNAGE

This section provides the guidelines to be followed in the event that additional signs and/or mirrors are need along Leviathan Mine Road. Prior to installation of additional signage, the USDA Forest Service will be notified in writing of the proposed signage. This notification will include the following:

1. Purpose for the proposed signage;
2. Proposed location of new signage in miles (i.e. Post Mile) from either United States Highway 395 (US 395) or California State Route 89 (SR 89);
3. MUTCD codes and reference, if applicable;
4. A description of the proposed signage; and
5. Whether the signage is for inbound or outbound traffic.

Pending USDA Forest Service approval, the signage should be installed in accordance with the following guidelines.

4.1 Signage Implementation Goals

The goal of additional signage will be to promote the safe and efficient movement of vehicles along the Leviathan Mine Road. Signage implementation will be conducted in accordance with the USDA Forest Service Road Use Permit, the Leviathan Mine Road Maintenance and Resurfacing Specifications, the MUTCD, and Forest Service Guidelines.

To be effective, signage will meet the five basic requirements for traffic control devices specified in the MUTCD:

- Fulfill a need;
- Command attention;
- Convey a clear, simple meaning;
- Command respect from road users; and
- Give adequate time for proper response.

Signage implementation includes warning signs, guidance information, and object markers for road users. Warning signs are used to call attention to unexpected conditions on or adjacent to the roadway and to situations that may not be readily apparent to road users. These include steep grade, stop ahead, hairpin curve, narrow winding road, slippery when wet, slow dips ahead, and other cautionary signs. All warning signs have a black border and four inch letters on a yellow background. Guidance signs are used to convey information to road users.

These include watch for falling rock signs, distance plaques and speed advisory plates. Object markers are used to alert the road user that a variance on the roadway is being traversed. These include Type 3 Object Markers to delineate the location of drivable dips and cattle guards crossing the roadway.

4.2 Specifications and Placement of Signage

Signs should meet the specifications presented in the MUTCD. Signs not included in the MUTCD should meet the specifications as directed by the USDA Forest Service in general accordance with the Forest Service Guidelines.

The placement of signage will be within the road user's field of view to provide adequate visibility. Signs will be located on the right side of the roadway where they are easily recognized and understood by road users. Signs should be located so that they optimize nighttime visibility, minimize the effects of mud splatter and debris, do not obscure other signs, and are not hidden from view. The location and legibility of the signage should be such that a road user has adequate time to make the proper response in both day and night conditions. MUTCD guidelines for signage placement will be followed, when available.

4.3 Construction Best Management Practices

During all construction activities related to sign maintenance and installation, best management practices (BMPs) will be employed to prevent the discharge of sediment to the nearby creeks. BMPs to be employed will include:

- Spill kits and absorbent material will be kept on site in each vehicle during construction activities;
- Vehicles will be equipped with fire extinguishers, axes and shovels during construction activities for fire prevention; and
- Sedimentation will be minimized and contained during emplacement of sign or mirror posts.

5.0 DISCLAIMER

These recommendations and any implementation thereof by Atlantic Richfield are intended solely for the purpose of improving the safety of Atlantic Richfield project workforce accessing the site. Atlantic Richfield is not authorized to manage traffic or perform road maintenance activities on the Leviathan Mine Road for the benefit of other persons, including LRWQCB personnel and members of the general public, which are the responsibilities of the USDA Forest Service and/or the Alpine County Department of Public Works.

6.0 REVISION SUMMARY

This Signage Plan should be reviewed annually and updated as needed. This section includes a summary of amendments to this Signage Plan.

Version	Author	Description of Change	Date
Rev. 0	Spencer Archer Marc Lombardi	Initial publication.	4/12/2008
Rev. 1	Spencer Archer Brian Hoese	Minor revisions to text and tables.	3/30/2012
Rev. 2	Sydney Stewart Mike Johnson	Minor revisions to text. Updates to reflect changes in management structure.	4/1/2014
Rev. 3	Mike Johnson	Minor revisions to text including updates for new HITRA Defined Practice and new site permits.	4/1/2015
Rev.4	Mike Johnson	Minor revisions to text.	4/1/2016
Rev. 5	Mike Johnson	Minor revisions to text.	4/1/2017

2017 ANNUAL ROAD OPERATING PLAN
ATTACHMENT B: SIGNAGE PLAN

TABLES

Leviathan Mine
Alpine County, California

April 2017

TABLE 1
Nevada Access Route Signage

Location[1] PM	Label[2]	MUTCD Code[3]	MUTCD Reference	Description[4]	Sign Combo & Traffic Direction[5]	Vertical Height (inches)	Pole Height (feet above ground)
0.00	A	OM-3L, OM-3R	Chp. 2C Page 135	Type 3 Object Marker at Cattle Guard	INBOUND	36	8.00
0.00	A	OM-3L, OM-3R	Chp. 2C Page 135	Type 3 Object Marker at Cattle Guard	OUTBOUND	36	8.00
0.10	C	NA	NA	Turn Headlights On	INBOUND	34	9.83
	D	NA	NA	Designated Trucks Stop Here for Pilot Car		24	
0.25	F	W13-1P	Chp. 5C Page 539	Advisory 15 MPH (Yellow)	INBOUND	24	7.00
0.45	K	W8-2	Chp. 2C Page 120	Slow Dips Ahead	INBOUND	34	7.83
0.50	A	OM-3L, OM-3R	Chp. 2C Page 135	Type 3 Object Marker at Drivable Dip	INBOUND	36	8.00
0.50	A	OM-3L, OM-3R	Chp. 2C Page 135	Type 3 Object Marker at Drivable Dip	OUTBOUND	36	8.00
0.55	K	W8-2	Chp. 2C Page 120	Slow Dips Ahead	OUTBOUND	34	7.83
0.60	A	OM-3L, OM-3R	Chp. 2C Page 135	Type 3 Object Marker at Drivable Dip	INBOUND	36	8.00
0.60	A	OM-3L, OM-3R	Chp. 2C Page 135	Type 3 Object Marker at Drivable Dip	OUTBOUND	36	8.00
0.65	F	W13-1P	Chp. 5C Page 539	Advisory 15 MPH (Yellow)	INBOUND	18	6.50
0.73	K	W8-2	Chp. 2C Page 120	Slow Dips Ahead	INBOUND	34	7.83

TABLE 1
Nevada Access Route Signage

Location[1] PM	Label[2]	MUTCD Code[3]	MUTCD Reference	Description[4]	Sign Combo & Traffic Direction[5]	Vertical Height (inches)	Pole Height (feet above ground)
0.75	A	OM-3L, OM-3R	Chp. 2C Page 135	Type 3 Object Marker at Drivable Dip	INBOUND	36	8.00
0.75	A	OM-3L, OM-3R	Chp. 2C Page 135	Type 3 Object Marker at Drivable Dip	OUTBOUND	36	8.00
0.77	K	W8-2	Chp. 2C Page 120	Slow Dips Ahead	OUTBOUND	34	7.83
0.84	K	W8-2	Chp. 2C Page 120	Slow Dips Ahead	INBOUND	34	7.83
0.86	A	OM-3L, OM-3R	Chp. 2C Page 135	Type 3 Object Marker at Drivable Dip	INBOUND	36	8.00
0.86	A	OM-3L, OM-3R	Chp. 2C Page 135	Type 3 Object Marker at Drivable Dip	OUTBOUND	36	8.00
0.88	F	W13-1P	Chp. 5C Page 539	Advisory 15 MPH (Yellow)	OUTBOUND	18	9.33
	K	W8-2	Chp. 2C Page 120	Slow Dips Ahead		34	
1.20	F	W13-1P	Chp. 5C Page 539	Advisory 15 MPH (Yellow)	OUTBOUND	24	7.00
1.30	F	W13-1P	Chp. 5C Page 539	Advisory 25 MPH (Yellow)	INBOUND	24	7.00
1.80	NA	NA[8]	NA	One Lane Road with Turnouts	INBOUND	24	11.33
	NA	NA[9]	NA	Narrow Winding Road		34	
	E	W7-3aP	Chp. 5C Page 537	Next 9 Miles		18	
5.10	G	W7-1	Chp. 5C Page 537	Steep Grade	INBOUND	34	7.83

TABLE 1
Nevada Access Route Signage

Location[1] PM	Label[2]	MUTCD Code[3]	MUTCD Reference	Description[4]	Sign Combo & Traffic Direction[5]	Vertical Height (inches)	Pole Height (feet above ground)
5.30	H	RS-008	Chp. 2M Page 337	Watch for Falling Rocks	INBOUND	24	8.50
5.30	E	W7-3aP	Chp. 5C Page 537	Next 2 Miles	INBOUND	18	8.50
5.35	NA	NA[7]	Chp. 5C Page 539	Blind Curves Ahead	INBOUND	24	7.00
5.40	NA	NA	NA	Mirror	INBOUND/ OUTBOUND	30	7.50
6.00	NA	NA	NA	Mirror	INBOUND/ OUTBOUND	30	7.50
6.70	NA	NA	NA	Mirror	INBOUND/ OUTBOUND	30	7.50
6.50	A	OM-3L, OM-3R	Chp. 2C Page 135	Type 3 Object Marker at Cattle Guard	INBOUND	36	8.00
6.50	A	OM-3L, OM-3R	Chp. 2C Page 135	Type 3 Object Marker at Cattle Guard	OUTBOUND	36	8.00
6.90	NA	NA[7]	Chp. 5C Page 539	Blind Curves Ahead	INBOUND	24	7.00
7.10	NA	NA[7]	Chp. 5C Page 539	Blind CurveS Ahead	OUTBOUND	24	7.00
7.30	H	RS-008	Chp. 2M Page 337	Watch for Falling Rocks	OUTBOUND	24	8.50
	E	W7-3aP	Chp. 5C Page 537	Next 2 Miles		18	
9.00	I	W8-5	Chp. 2C Page 122	Slippery When Wet (Text)	INBOUND	43	10.08
	E	W7-3aP	Chp. 5C Page 537	Next 2 Miles		18	
9.10	J	W1-11	Chp. 2C Page 110	Hairpin curve (left)	INBOUND	43	8.58

TABLE 1
Nevada Access Route Signage

Location[1] PM	Label[2]	MUTCD Code[3]	MUTCD Reference	Description[4]	Sign Combo & Traffic Direction[5]	Vertical Height (inches)	Pole Height (feet above ground)
9.35	I	W8-5	Chp. 2C Page 122	Slippery When Wet (Text)	OUTBOUND	43	8.58
9.30	J	W1-11	Chp. 2C Page 110	Hairpin curve (right)	OUTBOUND	43	8.58
9.50	G	W7-1	Chp. 5C Page 537	Steep Grade	OUTBOUND	34	7.83
9.45	NA	NA[8]	NA	One Lane Road with Turnouts	OUTBOUND	24	10.50
	NA	NA[9]	NA	Narrow Winding Road		24	
	E	W7-3aP	Chp. 5C Page 537	Next 10 Miles		18	
9.50	F	W13-1P	Chp. 5C Page 539	Advisory 25 MPH (Yellow)	OUTBOUND	18	6.50

Notes:
[1] Location of sign in miles relative to US 395 (PM = Post Mile). Signs indicated at the same PM are installed together.
[2] Refer to Figure 2 for corresponding sign labels.
[3] Signs are in accordance with the 2009 edition of the U.S. Department of Transportation Federal Highway Administration, Manual on Uniform Traffic Control Devices for Streets and Highways.
[4] All signs are to be retroreflective using high intensity sheeting to show same shape and size for day and night travel. All warning signs shall have a black border and 4 inch black letters on a yellow background.
[5] Direction of traffic flow: Inbound is toward mine site; Outbound is leaving mine site.
[6] "Heavy Truck Traffic" sign based on FS Guidelines, sign FW8-6a-24. Signs are three lines of centered text, diamond shape, 24 inches on a side, black border around edges.
[7] See MUTCD Section 5C.13, Other Warning Signs.
[8] "One Lane Road with Turnouts" sign based on FS Guidelines, sign FW8-1a. Signs are two lines of centered text, rectangular shape, 48 inches wide by 24 inches tall, black border around edges.
[9] "Narrow Winding Road" sign based on FS Guidelines, sign FW5-1c-24. Signs are three lines of centered text, diamond shape, 24 inches on a side, black border around edges.

TABLE 2
California Access Route Signage

Location[1] PM	Label[2]	MUTCD Code[3]	MUTCD Reference	Description[4]	Sign Combo & Traffic Direction[5]	Vertical Height (inches)	Pole Height (feet above ground)
0.20	F	W13-1P	Chp. 5C Page 539	Advisory 15 MPH (Yellow)	INBOUND	18	6.50
0.10	J	W1-11	Chp. 2C Page 110	Hairpin curve (right)	INBOUND	43	12.17
	I	W8-5	Chp. 2C Page 122	Slippery When Wet (Text)		43	
0.10	B	W3-1	Chp. 5C Page 537	Stop Ahead - 300' prior to intersection	OUTBOUND	43	8.58
0.20	NA	NA[6]	NA	One Lane Road with Turnouts - 1200' from intersection	INBOUND	24	11.33
	NA	NA[7]	NA	Heavy Truck Traffic		34	
	E	W7-3aP	Chp. 5C Page 537	Next 3 Miles		18	
0.20	J	W1-11	Chp. 2C Page 110	Hairpin curve (left)	OUTBOUND	43	12.17
	I	W8-5	Chp. 2C Page 122	Slippery When Wet (Text)		43	
0.30	C	NA	NA	Turn Headlights On	INBOUND	34	7.83
0.40	NA	NA[8]	NA	Narrow Winding Road	INBOUND	34	9.33
	E	W7-3aP	Chp. 5C Page 537	Next 2 Miles		18	
0.55	NA	NA	NA	Mirror	INBOUND/ OUTBOUND	18	6.50
1.00	NA	NA[7]	Chp. 5C Page 539	Caution Blind Curve	INBOUND	24	7.00
1.04	NA	NA	NA	Mirror	INBOUND/ OUTBOUND	24	7.00
1.08	NA	NA[7]	Chp. 5C Page 539	Caution Blind Curve	OUTBOUND	24	7.00
1.10	I	W8-5	Chp. 2C Page 122	Slippery When Wet (Text)	INBOUND	43	8.58

TABLE 2
California Access Route Signage

Location[1] PM	Label[2]	MUTCD Code[3]	MUTCD Reference	Description[4]	Sign Combo & Traffic Direction[5]	Vertical Height (inches)	Pole Height (feet above ground)
1.10	G	W7-1	Chp. 5C Page 537	Steep Grade	INBOUND	34	9.33
	E	W7-3aP	Chp. 5C Page 537	Next 2 Mile		18	
1.10	F	W13-1P	Chp. 5C Page 539	Advisory 15 MPH (Yellow)	INBOUND	24	7.00
1.50	F	W13-1P	Chp. 5C Page 539	Advisory 15 MPH (Yellow)	INBOUND		
1.55	F	W13-1P	Chp. 5C Page 539	Advisory 15 MPH (Yellow)	OUTBOUND	18	6.50
2.20	NA	NA	NA	Mirror	INBOUND/ OUTBOUND	30	7.50
2.40	F	W13-1P	Chp. 5C Page 539	Advisory 15 MPH (Yellow)	OUTBOUND	24	7.00
2.60	NA	NA[8]	NA	Narrow Winding Road	OUTBOUND	34	7.83
2.50	NA	NA[7]	NA	Heavy Truck Traffic	OUTBOUND	34	12.17
	E	W7-3aP	Chp. 5C Page 537	Next 3 Miles		18	
2.60	F	W13-1P	Chp. 5C Page 539	Advisory 15 MPH (Yellow)	OUTBOUND	18	6.50

Notes:

1 Location of sign in miles relative to SR-89 (PM = Post Mile). Signs indicated at the same PM are installed together.

2 Refer to Figure 2 for corresponding sign labels.

3 Signs are in accordance with the 2009 edition of the U.S. Department of Transportation Federal Highway Administration, Manual on Uniform Traffic Control Devices for Streets and Highways.

4 All signs are to be retroreflective using high intensity sheeting to show same shape and size for day and night travel. All warning signs shall have a black border and 4 inch black letters on a yellow background.

5 Direction of traffic flow: Inbound is toward mine site; Outbound is leaving mine site.

6 "One Lane Road with Turnouts" sign based on FS Guidelines, sign FW8-1a. Signs are two lines of centered text, rectangular shape, 48 inches wide by 24 inches tall, black border around edges.

7 "Heavy Truck Traffic" sign based on FS Guidelines, sign FW8-6a-24. Signs are three lines of centered text, diamond shape, 24 inches on a side, black border around edges.

8 "Narrow Winding Road" sign based on FS Guidelines, sign FW5-1c-24. Signs are three lines of centered text, diamond shape, 24 inches on a side, black border around edges.

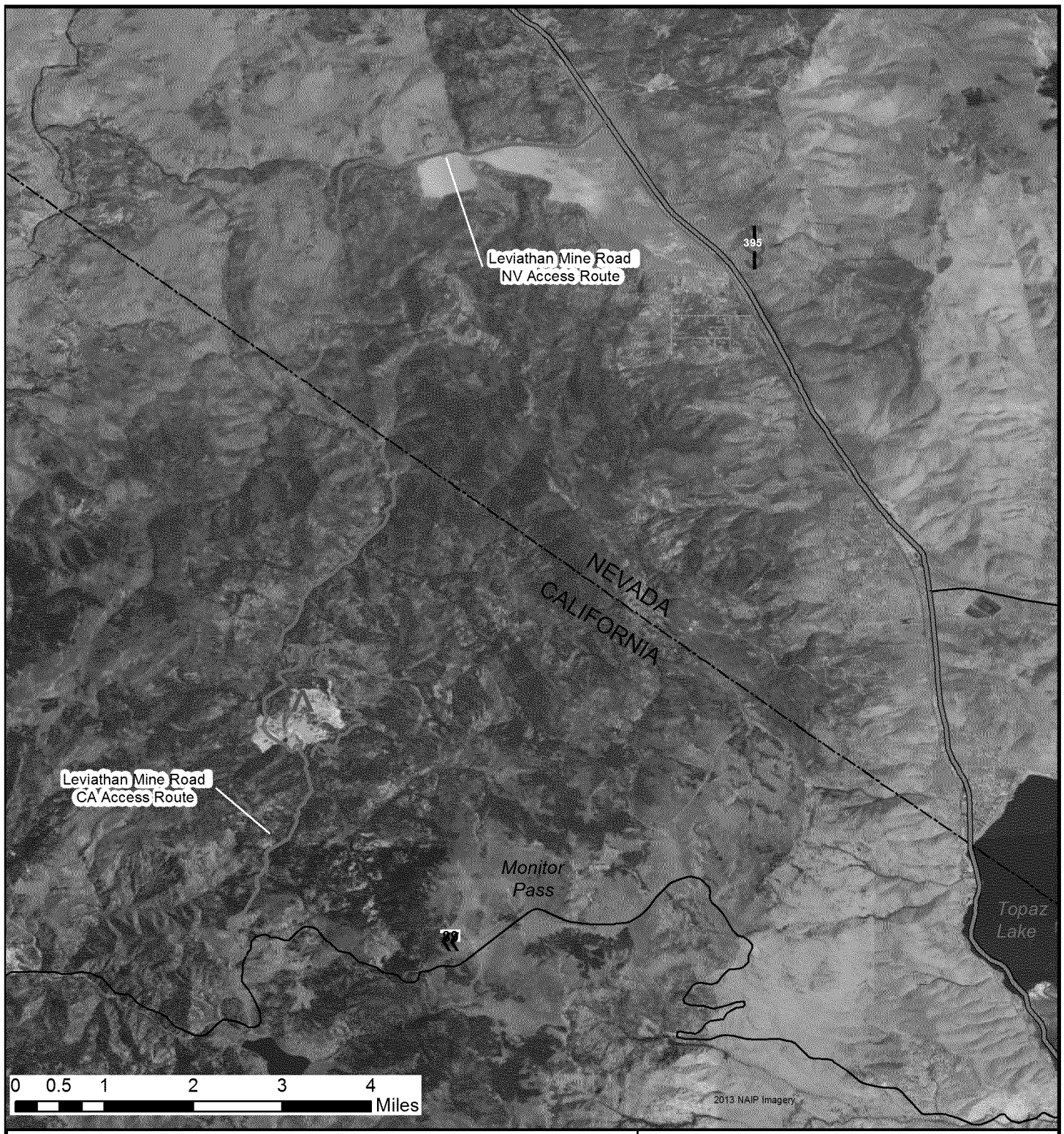
9 See MUTCD Section 5C.13, Other Warning Signs.

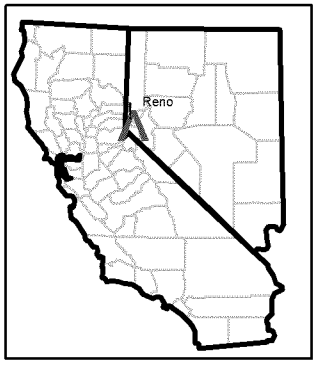
2017 ANNUAL ROAD OPERATING PLAN
ATTACHMENT B: SIGNAGE PLAN

FIGURES

Leviathan Mine
Alpine County, California

April 2017





Explanation

- State Route
- Highway
- Road
- Highway
- Leviathan Mine Site

FIGURE 1

SITE ACCESS ROUTES

Copper Environmental Consulting

Date: 2/18/14	By: LG	Reviewed: MJ

APPENDIX A:
MUTCD SIGN SPECIFICATIONS

Leviathan Mine
Alpine County, California

April 2017

A

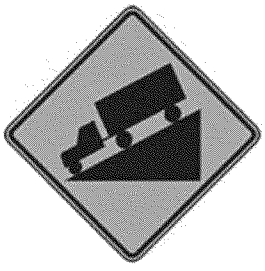
B

C

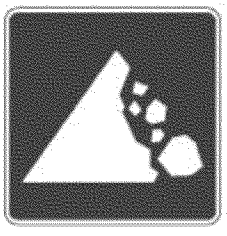
D

E

F

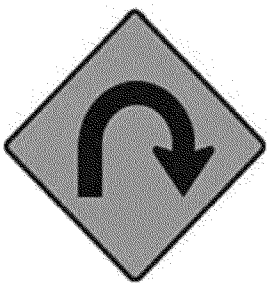


G



H

I



J

K

ROAD SIGNS
Leviathan Mine Site
Alpine County, California

By: dpv	Date: 02/15/12	Project No. 0013091123
amec		Figure 2

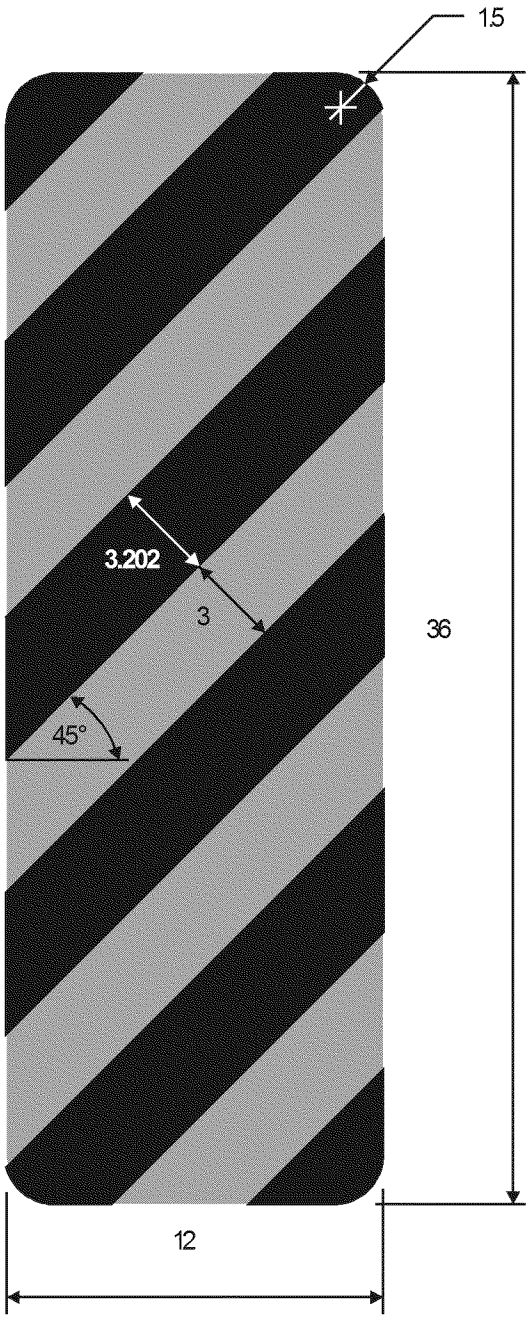
Plot Date: 02/15/12 - 1:34pm. Plotted by: donna.valasek
Drawing Path: P:\Project\13000s\13091 Leviathan\14000 Database_CAD\CAD\Signage plan\. Drawing Name: Fig 2_road signs3.dwg

2017 ANNUAL ROAD OPERATING PLAN
ATTACHMENT B: SIGNAGE PLAN

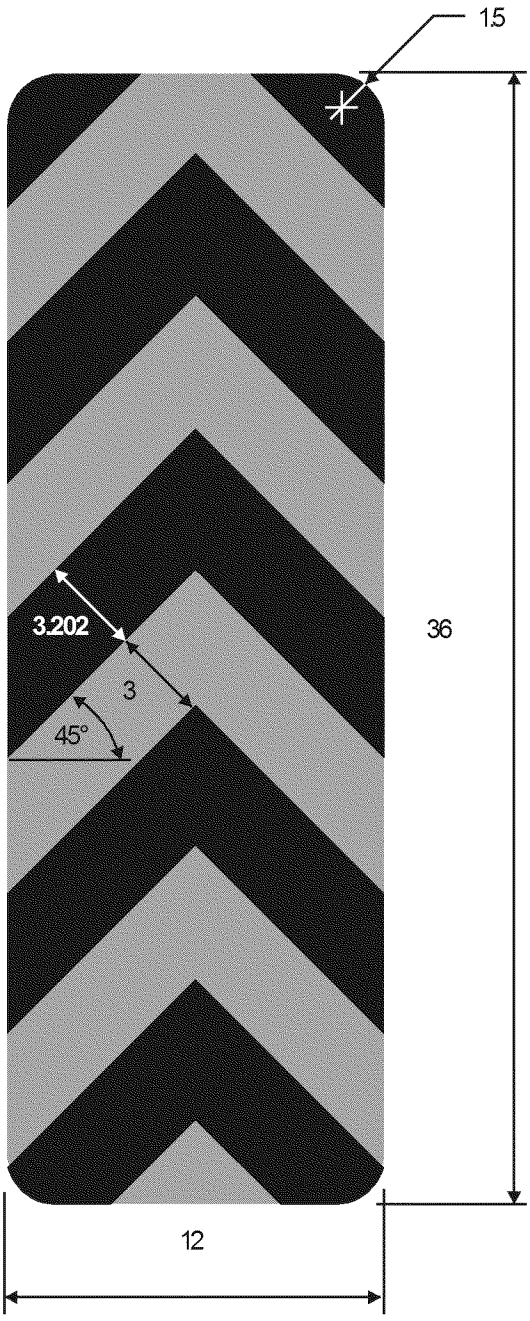
APPENDIX A:
MUTCD SIGN SPECIFICATIONS

Leviathan Mine
Alpine County, California

April 2017



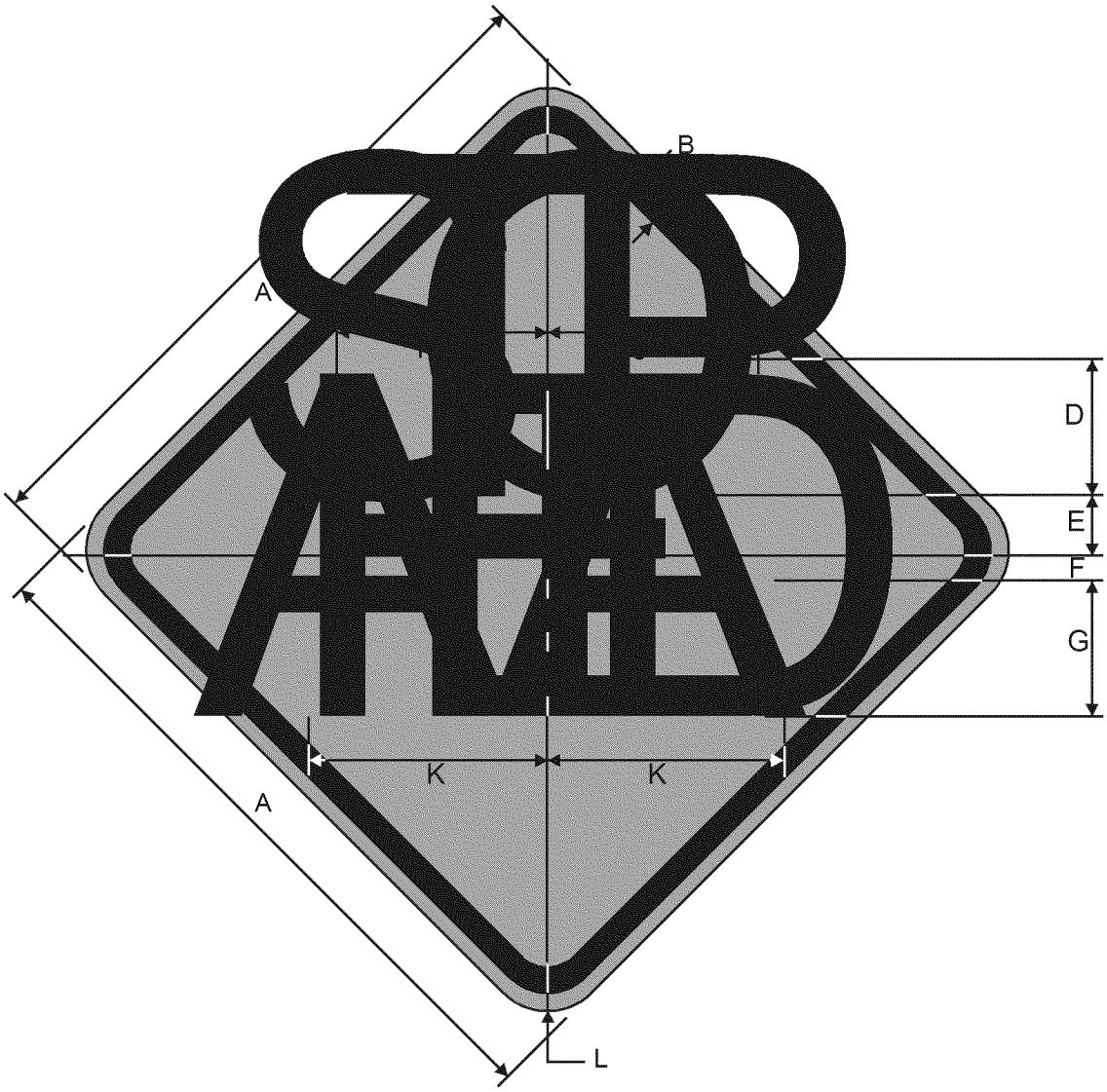
CM-3R



CM-3C

CM-3L

COLORS: STRIPES -BLACK
BACKGROUND-YELLOW (RETROREFLECTIVE)



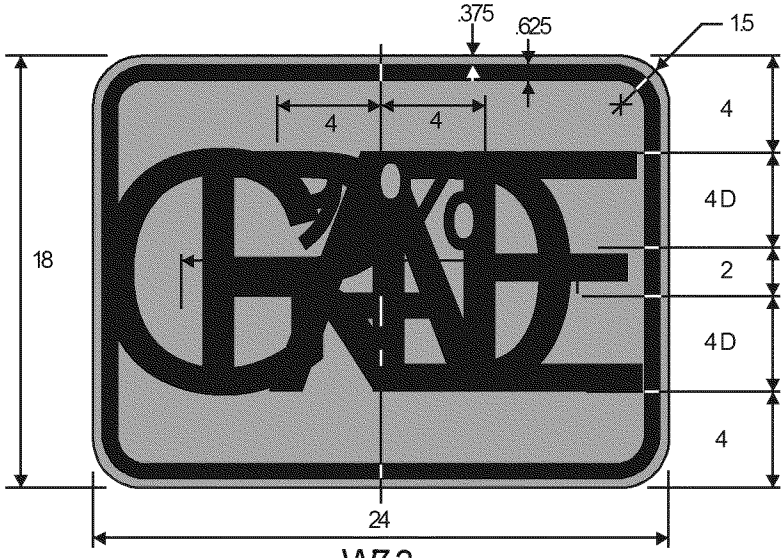
W3-1a

STOP AHEAD

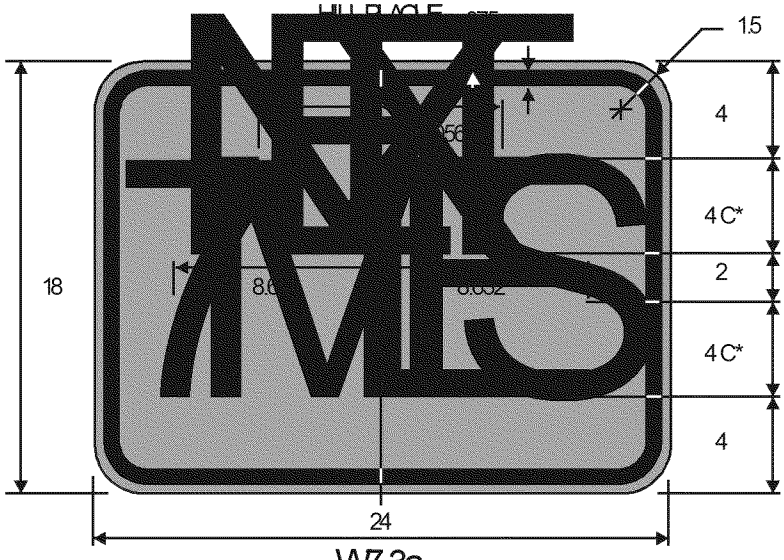
*Reduce spacing 20%; no reduction for 18 and 24" size.

A	B	C	D	E	F	G	H	J	K	L
18	.375	.625	3 D	1.75	.75	3 C	4.75	5.25	5.375	1.5
24	.375	.625	5 D	2	1	5 C	8.125	8.188	8.75	1.5
30	.5	.75	6 D	2.5	1.25	6 C	9	9.875	10.5	1.875
C 36	.625	.875	7 D	3	1.5	7 C	10.5	11.563	12.25	2.25
48	.75	1.25	9 D	4	2	9 C	13.5	14.813	15.75	3

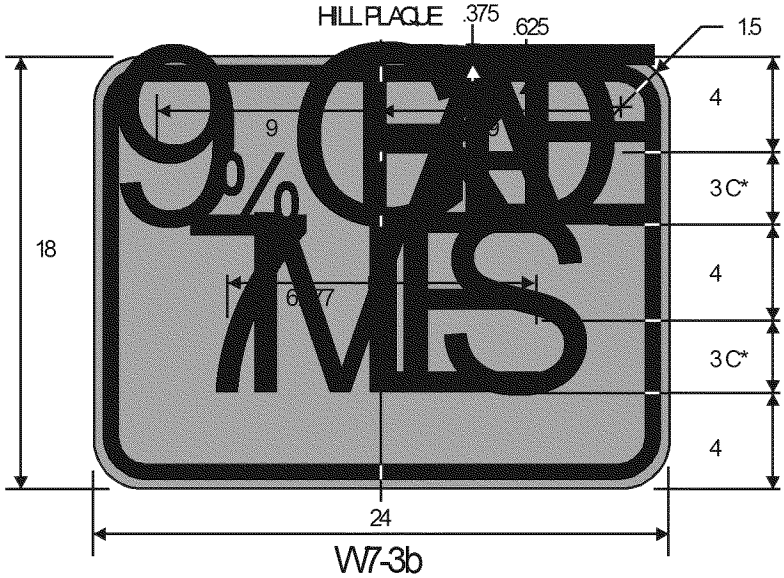
COLORS: LEGEND —BLACK
BACKGROUND—YELLOW (RETROREFLECTIVE)



W7-3



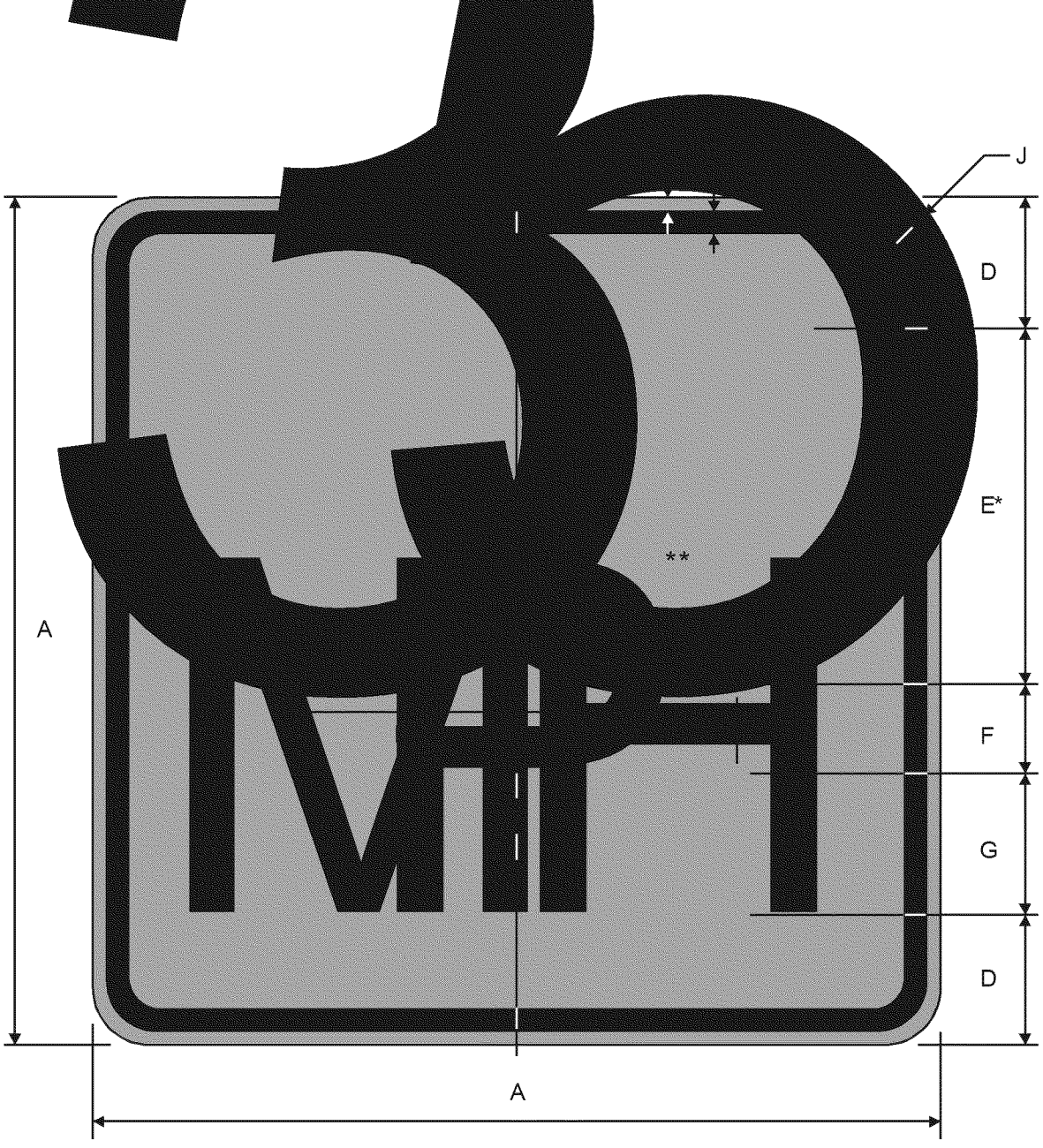
W7-3a
HILL PLAQUE



W7-3b
HILL PLAQUE

*Series 2000 Standard Alphabets.

COLORS: LEGEND —BLACK
BACKGROUND— YELLOW (RETROREFLECTIVE)



W13-1

ADVISORY SPEED (ENGLISH)

*Series 2000 Standard Alphabets.
**Optically space numerals about vertical centerline.

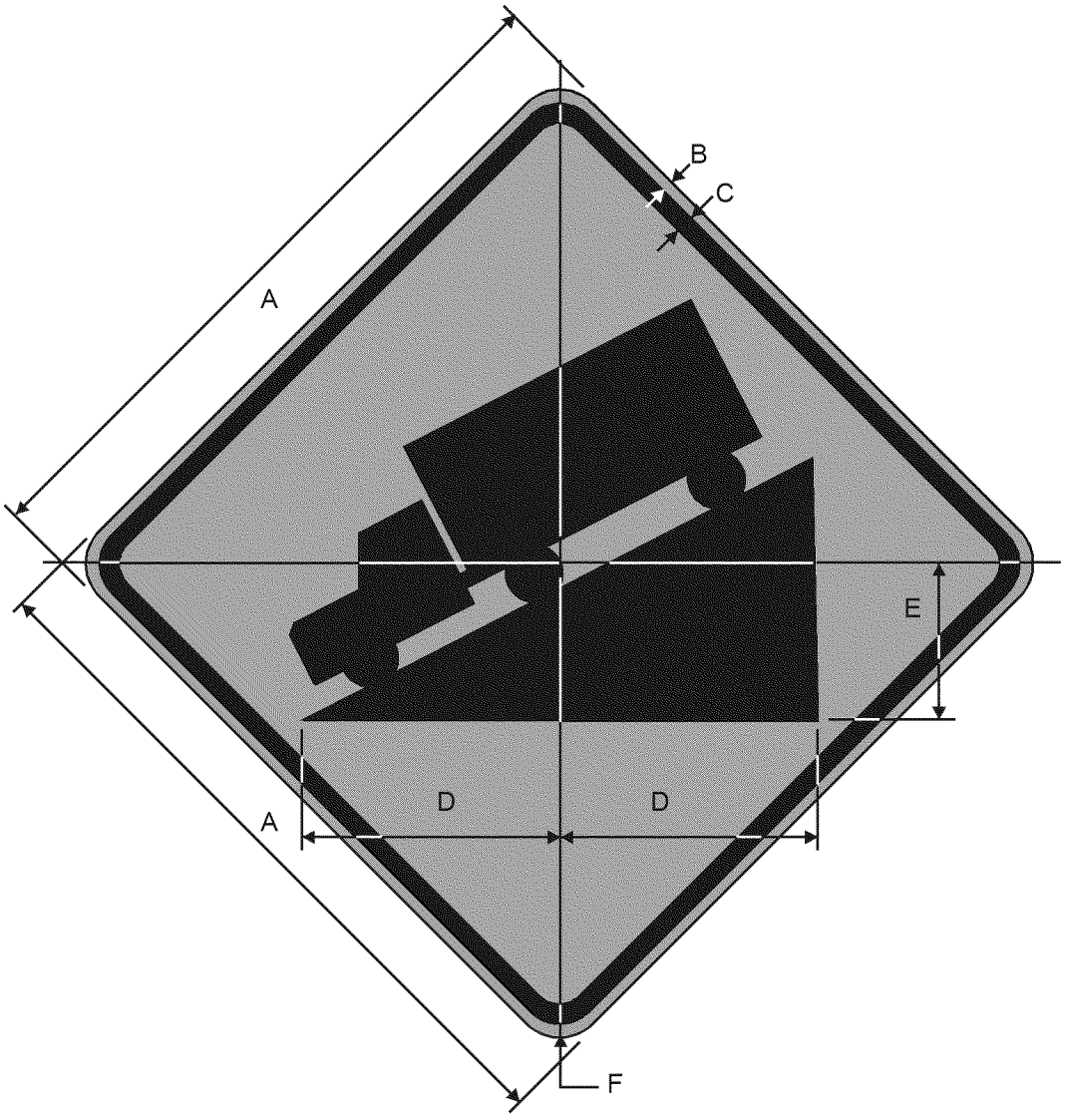
	A	B	C	D	E	F	G	H	J
C	18	.375	.625	2.5	8 E	2	3 E	4.723	1.5
	24	.375	.625	3.625	10 E	2.75	4 E	6.284	1.5
	30	.5	.75	4.5	12 E	4	5 E	7.416	1.875

WARNING SIGN COLORS:

LEGEND —BLACK
BACKGROUND—YELLOW (RETROREFLECTIVE)

TTC SIGN COLORS:

LEGEND —BLACK
BACKGROUND—ORANGE (RETROREFLECTIVE)



W7-1

HILL

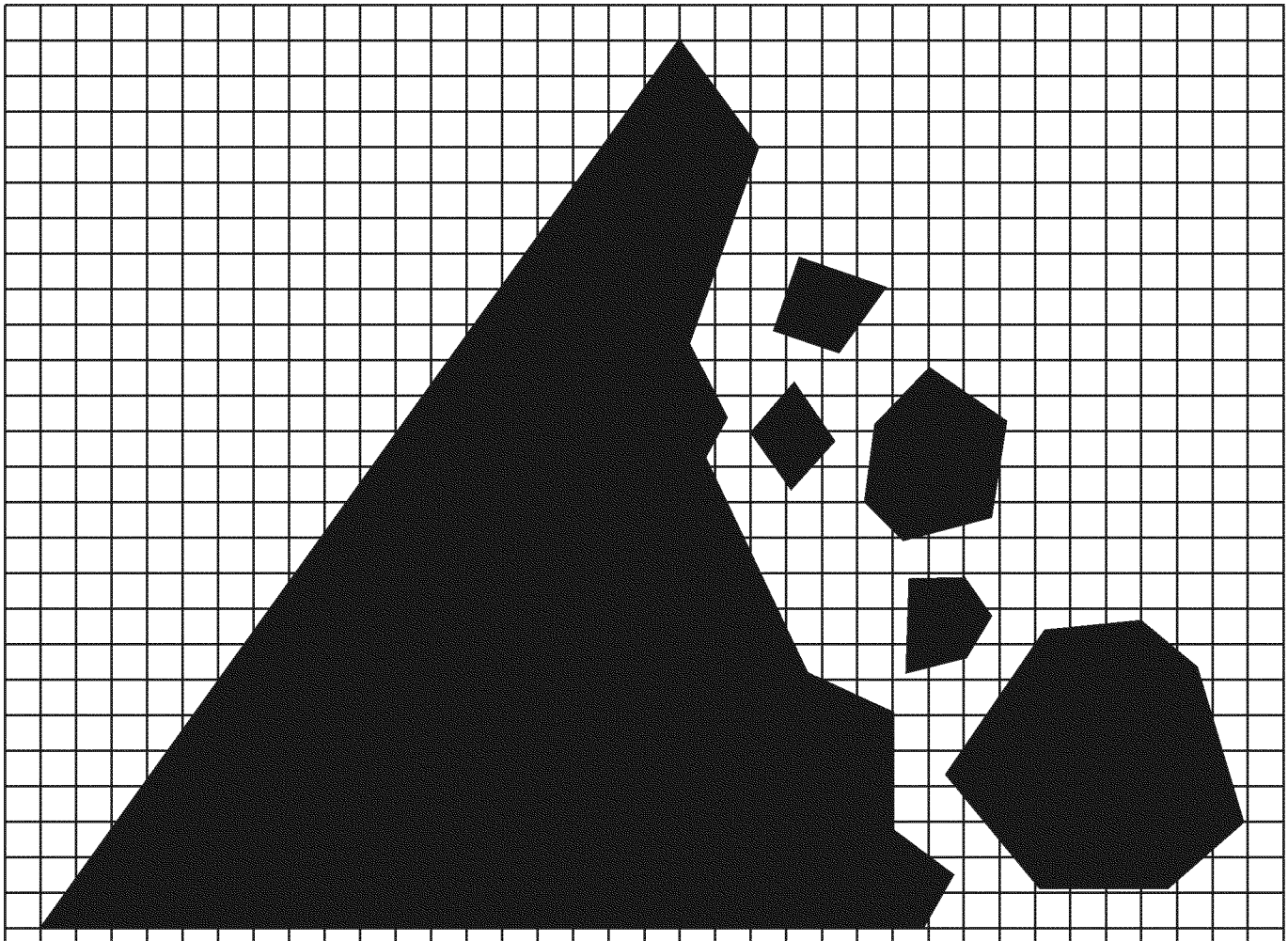
*See page 6-22 for symbol design.

C

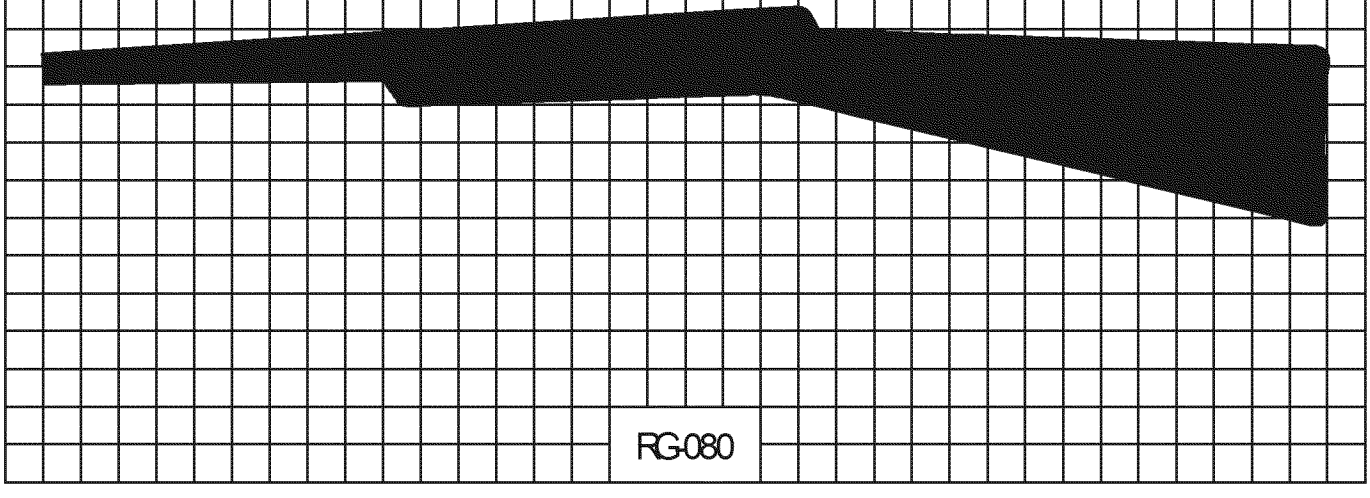
A	B	C	D	E	F
24	.375	.625	8.75	6	1.5
30	.5	.75	11	7.5	1.875
36	.625	.875	13.25	9	2.25
48	.75	1.25	17.5	12	3

WARNING SIGN COLORS:
SYMBOL —BLACK
BACKGROUND—YELLOW (RETROREFLECTIVE)

TTC SIGN COLORS:
SYMBOL —BLACK
BACKGROUND—ORANGE (RETROREFLECTIVE)

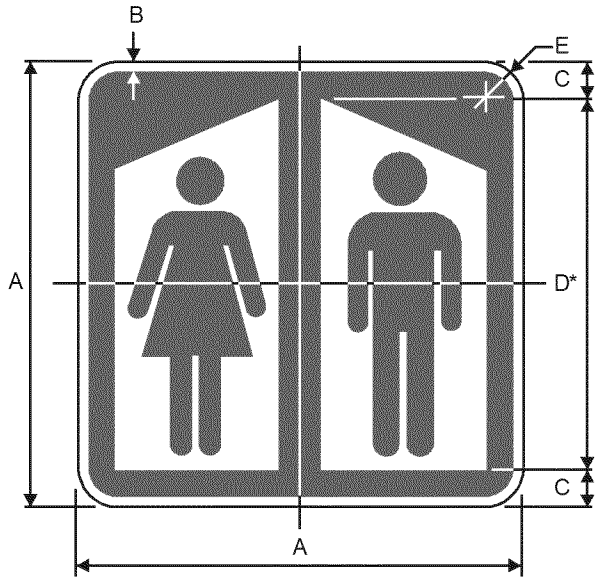


RG-070

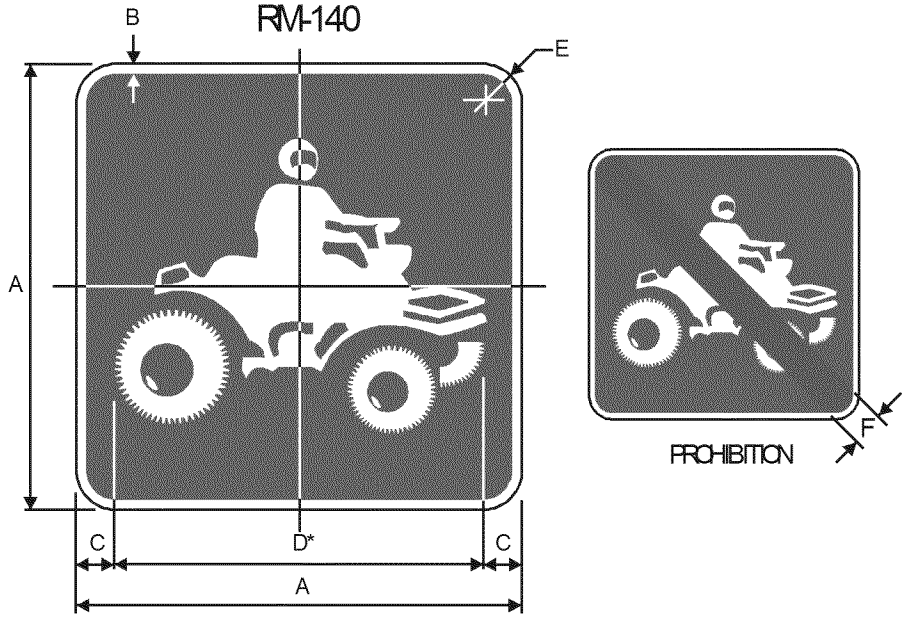


RG-080

EXAMPLES OF DESIGN APPLICATIONS
RECREATIONAL & CULTURAL INTEREST SIGNS



RM-140

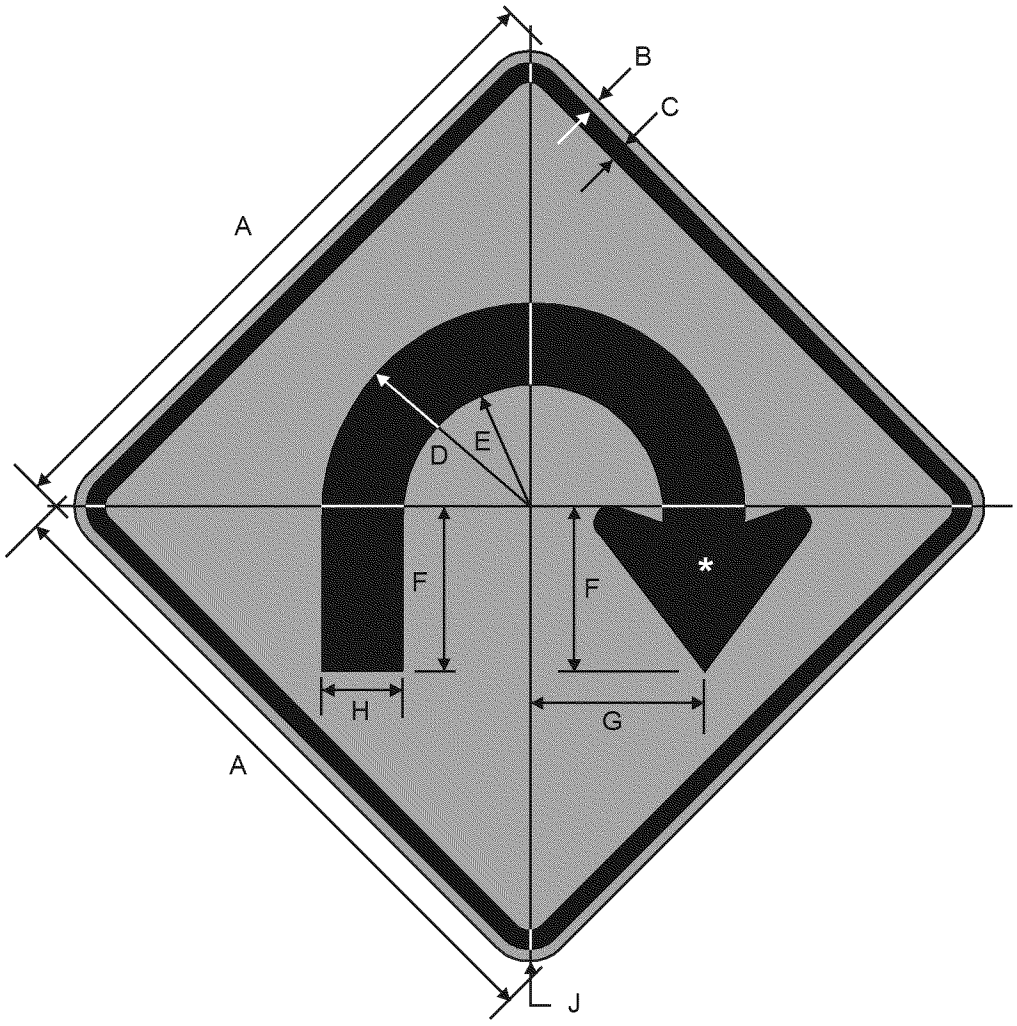


RL-170

*The largest dimension of most symbols should be about 83.5% of the total sign width. Symbols for showers, trailer sanitary stations, boat tours, interpretative trails, and climbing areas should extend near or into the sign border as shown in the grid layouts.

A	B	C	D	E	F
24	.5	2	20	1.5	3
18	.5	1.5	15	1.5	2.25
12	.375	1	10	.75	1.5
9	.375	.75	7.5	.75	1.125
6	.25	.5	5	.375	.75

COLORS: LEGEND —WHITE (REFLECTIVE)
BACKGROUND—BROWN



W1-11

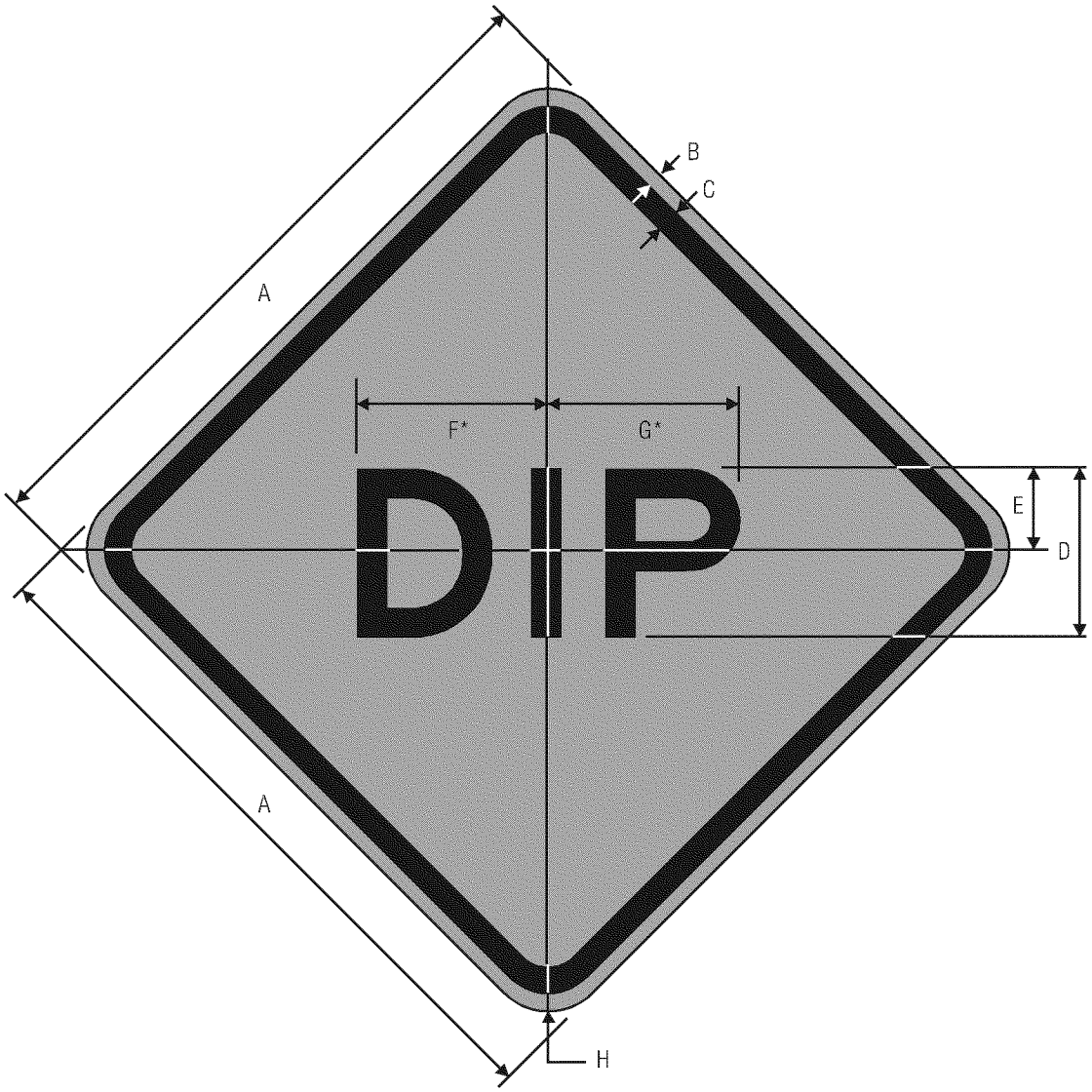
HAIRPIN CURVE

*See page 6-2 for symbol design.
**Optically position numerals.

C

A	B	C	D	E	F	G	H	J
30	.5	.75	9.407	5.804	7.365	7.845	3.603	1.875
36	.625	.875	11.288	6.965	8.846	9.407	4.323	2.25
48	.75	1.25	15.051	9.287	11.768	12.569	5.764	3

COLORS: LEGEND —BLACK
BACKGROUND— YELLOW (RETROREFLECTIVE)



W8-2

DIP

*Increase spacing 50%

	A	B	C	D	E	F	G	H
	18	.375	.625	5 E	2.5	5.813	6.71	1.5
	24	.375	.625	6 E	3	7.125	8.125	1.5
C	30	.5	.75	8 E	4	9.5	10.875	1.875
	36	.625	.875	10 E	5	11.875	13.5	2.25
	48	.75	1.25	12 E	6	14.25	16.25	3

WARNING SIGN COLORS:
LEGEND — BLACK
BACKGROUND— YELLOW (RETROREFLECTIVE)

TTC SIGN COLORS:
LEGEND — BLACK
BACKGROUND— ORANGE (RETROREFLECTIVE)

2017 ANNUAL ROAD OPERATING PLAN

ATTACHMENT C:
DUST SUPPRESSION PLAN

Leviathan Mine
Alpine County, California

April 2017

2017 DUST SUPPRESSION PLAN
REVISION 6

Leviathan Mine
Alpine County, California

Prepared for:
Atlantic Richfield Company
La Palma, California

Originally Prepared by:

AMEC Environment & Infrastructure, Inc.
Rancho Cordova, California 95670

2017 Revision by:

406 East Park Avenue, Suite 2
Anaconda, Montana 59711


5450 Louie Lane #101
Reno, Nevada 89511

April 2017

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF APPENDICES

1.0 INTRODUCTION

On behalf of Atlantic Richfield Company (Atlantic Richfield), Copper Environmental Consulting (CEC) has prepared this Dust Suppression Plan to support ongoing United States Environmental Protection Agency (U.S. EPA) required Removal Action (RA) and Remedial Investigation (RI) activities at the Leviathan Mine Site (site) located in Alpine County, California (CA). This Dust Suppression Plan has been prepared to reduce dust generation on Leviathan Mine Road (Forest Service Road 10052) related to the Atlantic Richfield project workforce (all Atlantic Richfield employees, contractors, and subcontractors working at the site) accessing the site. This Dust Suppression Plan describes the potential dust suppression techniques that may be employed and provides guidelines for the application of dust palliatives (i.e., Envirotac II®) that may be necessary to control dust generation. All dust suppression techniques employed by Atlantic Richfield will be performed under United States Department of Agriculture (USDA) Forest Service approval and in accordance with the requirements of the Road Use Permit issued to Atlantic Richfield by the USDA Forest Service on July 16, 2013.

1.1 Health and Safety Considerations

Atlantic Richfield regards the health and safety of their project workforce, the public, the surrounding community, and the environment as the highest priority on any project.

The primary safety document for implementation of all work at the site will be the *Leviathan Mine Site Health, Safety, Security, and Environment Program Document* (HSSE Program Document)[1]. In addition, all contractors working at the site are required to have their own Task Specific Health and Safety Plan (TSHASP) prepared consistent with 29 Code of Federal Regulations (CFR) 1910.120 and California Code of Regulations (CCR) Title 8, Section 5192. The HSSE Program Document and TSHASPs are the primary safety documents for implementation of all work conducted at the site by contractors and subcontractors. These documents will be referred to for all general safety issues involving implementation of the scope of work described herein with this Dust Suppression Plan.

Additionally, the Traffic Management Plan[2] sets forth the guidelines for all vehicles, including medium (single-unit) to heavy duty (tractor-trailer) trucks accessing the site. These guidelines will be followed throughout the project.

---

[1] The HSSE Program Document and TSHAPs, along with any revisions, will be available for review on-site in the Administration Office Trailer.

[2] The Traffic Management Plan, along with any revisions, will be available for review on site in the Administration Office Trailer.

1.2 Mandatory Requirements for Vehicles and Personnel

In addition to the above health and safety considerations, the following are mandatory requirements that are to be followed during dust suppression activities:

- Hazard Identification and Task Risk Assessment practices that are consistent with Remediation Management's (RM's) Hazard Identification and Task Risk Assessment Defined Practice, including Field Authorization Forms;
- Driving Safety work practices that are consistent with RM's Driving Safety Defined Practice, including the site permit (Light Vehicle Operator);
- Fit for Duty work practices that are consistent with RM's Fit for Duty Defined Practice;
- Simultaneous Operations (SIMOPS) work practices that are consistent with RM's SIMOPS Defined Practice;
- Job Zone Control and Traffic Management work practices that are consistent with RM's Job Zone Control and Traffic Management Defined Practice;
- Heavy Equipment work practices that are consistent with RM's Heavy Equipment Defined Practice, including the site permit (Heavy Equipment Operations);
- Transportation and Journey Assessment work practices that are consistent with RM's Transportation and Journey Assessment Defined Practice;
- Management of Change (MoC) work practices that are consistent with RM's MoC Defined Practice;
- Control of Work Permits including: work at heights, ground disturbance, and hot work;
- Road Use Permit – all vehicles are required to carry a copy of page one of the signed United States Department of Agriculture (USDA) Forest Service Road Use Permit;
- Limited Dust Policy – regardless of the posted recommended speeds, all vehicles are required to be respectful of neighbors, off-road enthusiasts, on-site personnel, etc. and minimize vehicle dust generation; and
- Speed Policy – although the posted speeds are only recommended, all vehicles are required to keep speed below the posted advisory speed limit and only drive as fast as conditions safely allow.

General driving safety requirements are provided in the HSSE Program Document. Work practices, which are consistent with RM's Defined Practices, are included in each contractor's TSHASP.

2.0 BACKGROUND

Access to the site is provided by Leviathan Mine Road (also known as Forest Service Road 10052), which is an unpaved road that connects to CA State Route 89 (SR 89) over Monitor Pass to United States Highway 395 (US 395) in the Double Spring Flat area between Gardnerville, Nevada (NV) and Topaz Lake, NV (Figure 1). Leviathan Mine Road extends approximately nine miles east of the site to US 395 (NV Access Route) and approximately three miles west of the site to SR 89 (CA Access Route).

The USDA Forest Service Road Use Permit issued to Atlantic Richfield grants use of the Leviathan Mine Road and other related road segments for commercial hauling and personnel transport at the Leviathan Mine Site through December 31, 2018. As specified in the Road Use Permit, Atlantic Richfield will perform road maintenance activities in accordance with the Leviathan Mine Road Maintenance and Resurfacing Specifications.

Activities related to dust suppression on Leviathan Mine Road will be conducted in consultation with and at the approval of the USDA Forest Service and in accordance with the applicable requirements as specified in the Road Use Permit and the Leviathan Mine Road Maintenance and Resurfacing Specifications. A copy of the Road Use Permit and the Leviathan Mine Road Maintenance and Resurfacing Specifications is included in the Traffic Management Plan.

Several single-family residential structures are located along the NV Access Route within approximately one mile of US 395. The following dust suppression measures have been performed at various times over the past several years to mitigate dust impacting the residential structures from Atlantic Richfield project workforce traffic entering the site:

- The application of water to the road surface has been used on an as needed basis, generally during periods of heavy traffic, since 2007.
- In 2008[3], Durasoil® Synthetic Organic Dust Control Agent (Durasoil®) was applied to the section of road adjacent to the residential structures in order to ameliorate dust conditions. While Durasoil® was found to be an effective dust suppressant, some residents thought the road became more slippery during the winter.
- In September 2010, Atlantic Richfield applied Envirotac II®, a synthetic polymer dust palliative, to an approximately 1.6-mile stretch of Leviathan Mine Road commencing from approximately 0.2 miles from the road's intersection with US 395.

[3] Atlantic Richfield, 2008, *2008 Dust Suppression Plan*, prepared by Geomatrix Consultants, Inc., July 9.

- In June 2011, Atlantic Richfield applied a maintenance application of Envirotac II® to the same 1.6-mile stretch of Leviathan Mine Road commencing from approximately 0.2 miles from its intersection with US 395.
- Also in June 2011, Atlantic Richfield constructed and modified drivable dips in an effort to transmit storm water to the south side of the road. The drivable dips provide a secondary benefit of reducing vehicle speeds, which reduces dust generation. The location of the dips is shown on Figure 2.
- In May 2012, Atlantic Richfield re-graded and applied a maintenance application of Envirotac II® to the same 1.6-mile stretch of Leviathan Mine Road commencing from approximately 0.2 miles from its intersection with US 395. Maintenance was also performed on the drivable dips that were constructed in June 2011.
- In July 2013, Atlantic Richfield re-graded and applied a maintenance application of Envirotac II® again to the 1.6 mile stretch of Leviathan Mine Road with the application adding an extended 0.15-mile stretch commencing from approximately 0.05 miles from its intersection with US 395. Maintenance was also performed on the drivable dips that were constructed in June 2011.
- In June 2014, Atlantic Richfield re-graded and applied a maintenance application of Envirotac II® again to the 1.6 mile stretch of Leviathan Mine Road with the application adding an extended 0.15-mile stretch commencing from approximately 0.05 miles from its intersection with US 395. Maintenance was also performed on the drivable dips consistent with previous years.
- In July 2015, Atlantic Richfield re-graded and performed a full reapplication of Envirotac II® again to the 1.6 mile stretch of Leviathan Mine Road with the application adding an extended 0.15-mile stretch commencing from approximately 0.05 miles from its intersection with US 395. Maintenance was also performed on the drivable dips consistent with previous years.
- In June 2016, Atlantic Richfield re-graded and performed a full reapplication of Envirotac II® again to the 1.6 mile stretch of Leviathan Mine Road with the application adding an extended 0.15-mile stretch commencing from approximately 0.05 miles from its intersection with US 395. Maintenance was also performed on the drivable dips consistent with previous years.

Atlantic Richfield will continue to evaluate dust generation and suppression techniques on Leviathan Mine Road and will perform road maintenance commensurate with Atlantic Richfield's use and in accordance with the Road Use Permit.

3.0 DUST SUPPRESSION ALTERNATIVES

The following subsections describe the potential dust suppression techniques that may be employed to reduce dust generation on Leviathan Mine Road.

3.1 Administrative Controls

As presented in Section 1.2, the following administrative controls are used by the Atlantic Richfield project workforce to suppress dust:

- Limited Dust Policy – regardless of the posted recommended speeds, all vehicles are required to be respectful of neighbors, off-road enthusiasts, hikers, on-site personnel, etc., and minimize vehicle dust generation; and
- Speed Policy – although the posted speeds are only recommended, all vehicles are required to keep speed below the posted advisory speed limit and only drive as fast as conditions safely allow.

These administrative controls are mandatory requirements that are to be followed for commercial traffic/vehicles accessing the site in connection with Atlantic Richfield project activities.

3.2 Dust Stabilizers

Dust stabilizers (also referred to as dust suppressants or palliatives) are chemicals or other materials used to control airborne dust from land surfaces. Dust stabilizers work by changing the physical and chemical properties of the road's soil surface. A wide variety of soil stabilizer chemicals and other materials are used for dust abatement. The soil stabilizers used on Leviathan Mine Road include fresh water, petroleum-based organics (Durasoil®) and synthetic polymers (Envirotac II®).

An evaluation of water, hydro-carbon based synthetic fluids and synthetic polymer emulsions is presented in the *Revised 2010 Dust Suppression Evaluation*[4]. The re-application of Durasoil® is not anticipated to be used in the future for dust suppression along Leviathan Mine Road; therefore, the following subsections describe the use of water and synthetic polymers for dust suppression.

[4] Atlantic Richfield, 2010, *Revised 2010 Dust Suppression Evaluation*, prepared by AMEC Geomatrix, Inc., August.

3.2.1 *Water Applications*

Water trucks may be used to spray water on the roadway to control dust emissions near the residences on the NV Access Route during periods of heavy truck traffic. Water truck(s) may be in use to water the roadway during periods of truck traffic when other methods for reducing dust generation, such as synthetic polymers, are determined to be insufficient.

Water applications are effective at suppressing dust for a limited time period and must be reapplied frequently. Water applications will generally be performed during heavy traffic to mitigate nuisance dust. During periods when heavy traffic is not present, water will not be applied to the roads. While this method will be effective at mitigating dust during periods of heavy traffic, it is not anticipated to be used to mitigate dust caused by normal daily project-related vehicle traffic or the public's use of the road. The administrative controls in place including limiting speed, in addition to the previous applications of dust stabilizers, will be used to mitigate dust generation associated with normal daily project-related vehicle traffic.

3.2.2 *Synthetic Polymers*

Synthetic polymer dust palliatives work by binding soil particles together during a curing process. There are a number of commercially available synthetic dust polymers on the market applicable for use under the conditions on Leviathan Mine Road. In 2010, the USDA Forest Service approved the use of Envirotac II® as a synthetic polymer dust palliative. In September 2010, June 2011, May 2012, July 2013, June 2014, July 2015, and June 2016, Envirotac II® was applied to Leviathan Mine Road to reduce dust generation. The manufacturer recommends an Envirotac II® maintenance application for continued dust control be re-applied every 12-36 months, as necessary.

Atlantic Richfield will continue to evaluate the effectiveness of Envirotac II® and the need for future applications. If it is determined that Envirotac II® should be re-applied, the guidelines set forth in Section 5.0 should be followed.

4.0 GUIDELINES FOR EVALUATING DUST GENERATION

This section provides the guidelines to be followed for evaluating dust generation along Leviathan Mine Road. Specifically, dust generation will be monitored along the section of Leviathan Mine Road commencing from approximately 0.2 miles from its intersection with US 395 to the turnoff toward River Ranch Road (see Figure 2). Dust measurements will be made by using a 10 micrometer (µm) particulate monitor (Title 8 California Code of Regulations Section 5155, Table AC-1), such as the Haz-Dust Meter, Model HD-1100. The following guidelines will be followed:

- Dust measurements may be collected as needed based on visual observations of an increase in dust generation.
- Background dust levels will be recorded prior to dust measurements during times of no vehicular traffic.
- Dust measurements will be collected at a minimum of three locations along the edge of the roadway, preferably at locations near residential properties.
- The dust meter will be located a minimum of 10 feet from the edge of the road on the downwind shoulder of the road. Dust generation from standard passenger vehicles, pickup trucks, and heavy industrial vehicles (as practicable) should be evaluated.
- Dust measurements will be made at speeds of 15 and 25 miles per hour (mph).
- Conservative dust measurements will be collected by recording the highest instantaneous dust reading as vehicles drive past the dust meter while traveling at a constant speed.
- Dust measurements that exceed the permissible exposure limit (PEL) of 5 milligrams per cubic meter (mg/m^3) for respirable factions, will warrant further evaluation to control dust and may include the application or reapplication of dust stabilizers.
- Visual observations of dust generation will also be noted while collecting dust measurements.
- If a dust stabilizer is applied, a visually noticeable decrease in dust will be considered a satisfactory visual observation.
- If Envirotac II® is applied to stabilize dust, a second set of dust measurements will be collected a minimum of 2 days after Envirotac II® application by repeating the procedures described above.

5.0 GUIDELINES FOR APPLICATION OF SYNTHETIC POLYMERS

This section provides the guidelines to be followed in the event that the application of Envirotac II® is needed along the residential section of Leviathan Mine Road (see Figure 2). Prior to application, the USDA Forest Service will be notified in writing of the proposed dust suppression activities. This notification will include the following:

1. Purpose of the proposed dust suppression activities;
2. A description of the proposed Envirotac II® application process; and
3. Traffic control measures to be utilized during dust suppression activities in accordance with the Manual on Uniform Traffic Control Devices (MUTCD)[5] and USDA Forest Service codes and references.

Pending USDA Forest Service approval, Envirotac II® will be applied in accordance with the following guidelines.

5.1 Public Notice

Following USDA Forest Service approval of road work and prior to implementation, Atlantic Richfield will notify the residents along Leviathan Mine Road in the affected area of the work on the road. The residents will be supplied notice of the type and duration of work at least five (5) days in advance of plan implementation, including all product information, and a proposed schedule.

5.2 Implementation Procedures

The following subsections describe the necessary tasks to be conducted for the application of Envirotac II®.

5.2.1 *Task 1 – Equipment, Traffic Control, and Envirotac II® Delivery and Transfer*

Specific equipment and traffic control are required for executing the Envirotac II® application. This equipment and these traffic controls include the following:

- One 4,000-gallon capacity water truck will be used for hauling 3,000 gallons of fresh water to the road site and for mixing the Envirotac II® and water solution for application. The water truck used for application of the Envirotac II® solution to

[5] U.S. Department of Transportation Federal Highway Administration, Manual on Uniform Traffic Control Devices for Streets and Highways, 2009 Edition.

the road surface should be capable of evenly distributing the solution over the entire approximate 24-foot road width.

- A forklift for unloading/loading Envirotac II® product totes.
- Traffic controls will include at a minimum:
  - A flagger equipped with all applicable health and safety personal protective equipment and radio on each end of the section of road being treated.
  - Advance warning construction traffic control signs and spacing compliant with Part 6 of the MUTCD. At least three advance warning signs on each end of the section of road being treated will be used. The first sign will read "Road Work Ahead" (MUTCD Reference W20-1). The second sign will show a Flagger Ahead (MUTCD Reference W20-7). The third sign will read "Be Prepared to Stop" (MUTCD Reference W3-4).
  - Atlantic Richfield project workforce may be used to provide supplemental assistance for traffic control and guidance to motorists traveling through the road work zone. Atlantic Richfield project workforce, including flaggers, will remain in radio communication at all times.
  - The Atlantic Richfield project workforce not associated with the road work will be directed to utilize the CA Access Route to minimize unnecessary travel through the road work zone.

The Envirotac II® product vendor (see Appendix A) should be contacted in order to procure and schedule delivery of the Envirotac II® solution to Leviathan Mine Road. The total procured volume of Envirotac II® product for a full re-application should be at least 4,400 gallons and a maintenance application should be at least 1,100 gallons. Delivery of the Envirotac II® should be made at the intersection of US 395 and Leviathan Mine Road. The Envirotac II® Safety Data Sheet (SDS) will be reviewed by all workers (see Appendix B). The delivery and Envirotac II® transfer will consist of the following:

1. The Envirotac II® is typically delivered in 250-gallon totes on a flat-bed trailer truck. The fork lift will be used to unload the 250-gallon totes from the trailer to prepare for transfer.
2. To transfer the Envirotac II® from the totes into the application equipment, two methods may be used:
   - A trash pump can be used to transfer the Envirotac II® from the tote, through the 8-inch opening at the top of the tote, directly to the application equipment (water truck); or
   - A 2-inch hose with a female camlock can be connected to the 2-inch male camlock drain line on the tote. The tote can then be lifted with the forklift and the Envirotac II® will gravity drain into the application equipment (water truck).

5.2.2 *Task 2 – Envirotac II® Application*

The following procedures should be followed to execute application of the Envirotac II®:

1. During the initial full application (or full reapplication) of the palliative, Envirotac II® would first be lightly applied to the road surface before any grading takes place. Next, the road crown would be graded and road base will be added as needed. During the grading process another application of Envirotac II® will be added to the disturbed soil. Following the grading process, the road surface shall be compacted using a vibratory roller for a minimum of two passes. Water should be applied to the road surface to provide moisture to aid in compaction. Lastly, a final application of Envirotac II® will be applied to the road surface. The prepared road surface shall be firm and unyielding prior to final application of the Envirotac II®.
2. A maintenance application (top coat application) of Envirotac II® should be applied every 12 months, as necessary. New road base, grading, and a full reapplication of Envirotac II® should be applied every two to three years, as needed.
3. The dust control re-application should consist of a mixture of 750 gallons of Envirotac II® and 3,000 gallons of water. The mixture can be batched directly in the 4,000-gallon water truck, making sure to add the water first and the Envirotac II® second to prevent foaming. The solution does not require mechanical mixing.
4. The solution should be applied to the road surface at a speed which ensures even distribution of the solution for the length and to the entire width of the roadway. Multiple application coats should be completed to net a maintenance application rate of 1 gallon undiluted Envirotac II® for every thirty-five (35) to sixty square (60) feet of road surface.
5. Traffic control should hold all traffic while the solution is being applied. Light vehicular traffic may drive on the treated road surface soon after the application; however, motorists should be cautioned to drive no faster than 5 mph to prevent the solution from getting kicked up onto their vehicles. As recommended by the manufacturer, the road surface shall not be compacted following final application of the Envirotac II® solution.
6. The ideal curing time for the solution is 3 to 4 hours in sunny relatively warm weather. Additional curing time may be required during overcast and relatively cool weather.
7. All equipment should be thoroughly rinsed following the application. Empty totes should be returned to the Envirotac II® vendor.

5.2.3 *Task 3 – Post Application Evaluation and Monitoring*

Following the application, post application evaluation activities will be completed:

1. The post application evaluation will generally repeat the initial evaluation procedures described in Section 4.0.
   - The post application evaluation will only require one vehicle to be used for test runs, such as a mid-sized pickup truck.

6.0 DISCLAIMER

These recommendations and any implementation thereof by Atlantic Richfield are intended solely for the purpose of improving the safety and mitigating dust that may be generated by the Atlantic Richfield project workforce accessing the site. Atlantic Richfield is not authorized to manage traffic or perform road maintenance activities on the Leviathan Mine Road for the benefit of other persons, including LRWQCB personnel and members of the general public, which are the responsibilities of the USDA Forest Service and/or the Alpine County Department of Public Works.

7.0 REVISION SUMMARY

This Dust Suppression Plan should be reviewed annually and updated as needed. This section includes a summary of amendments to this Dust Suppression Plan.

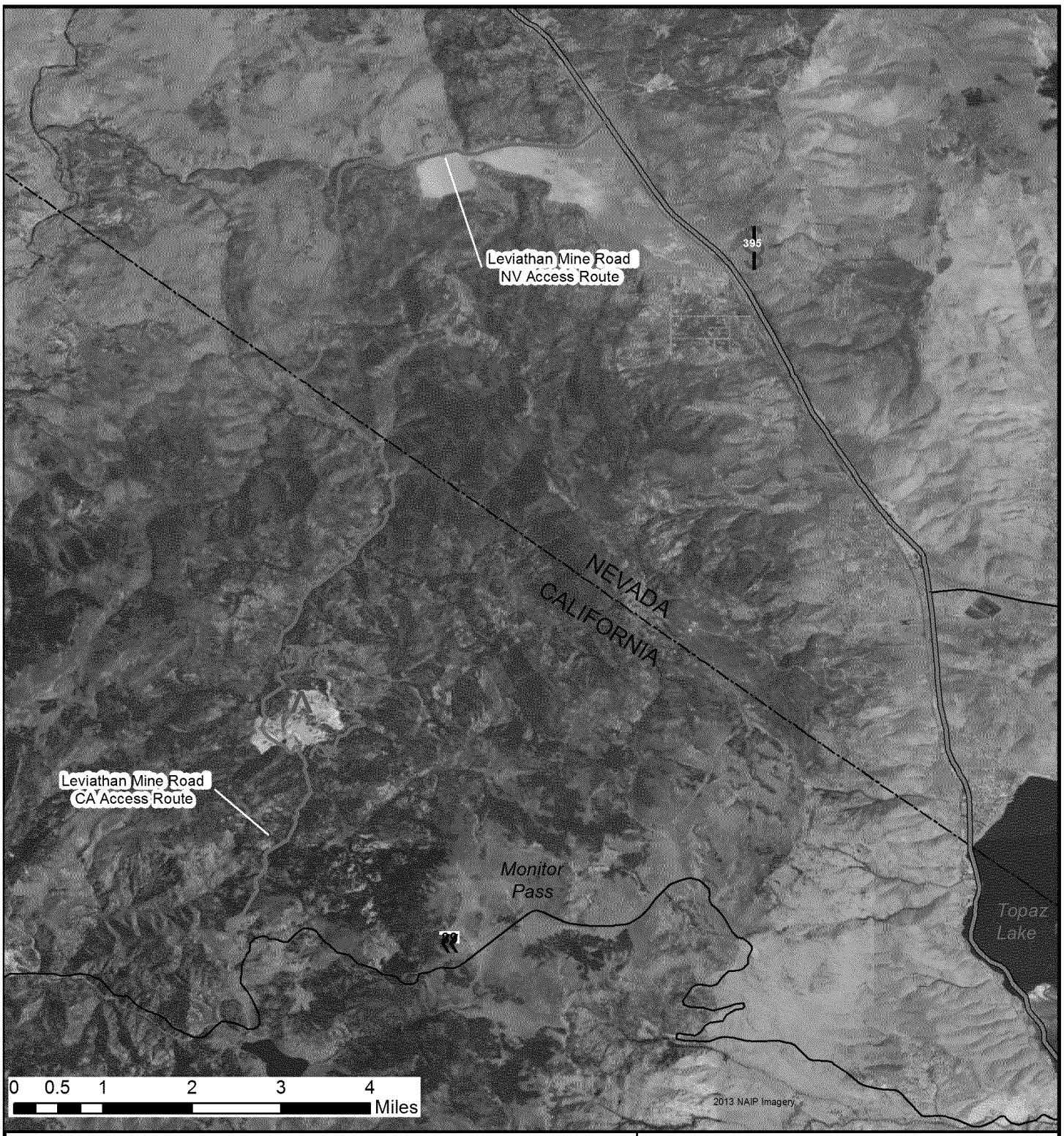
Version	Author	Description of Change	Date
Rev. 0	Spencer Archer Marc Lombardi	Initial publication.	4/12/2011
Rev. 1	Spencer Archer Brian Hoese Marc R. Lombardi	Minor text edits.	3/30/2012
Rev. 2	Stephen E. Huang Mehran Ebrahimi Andy Andrews	Minor text edits, update to application procedures.	4/1/2013
Rev. 3	Sydney Stewart Mike Johnson	Minor text edits, updates to reflect changes in management structure.	4/1/2014
Rev. 4	Mike Johnson	Minor text edits for updates in 2014.	4/1/2015
Rev. 5	Mike Johnson	Minor text edits.	4/1/2016
Rev. 6	Mike Johnson	Minor text edits.	4/1/2017

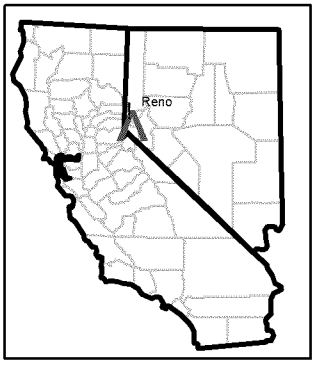
2017 ANNUAL ROAD OPERATING PLAN
ATTACHMENT C: DUST SUPRRESSION PLAN

FIGURES

Leviathan Mine
Alpine County, California

April 2017





Explanation

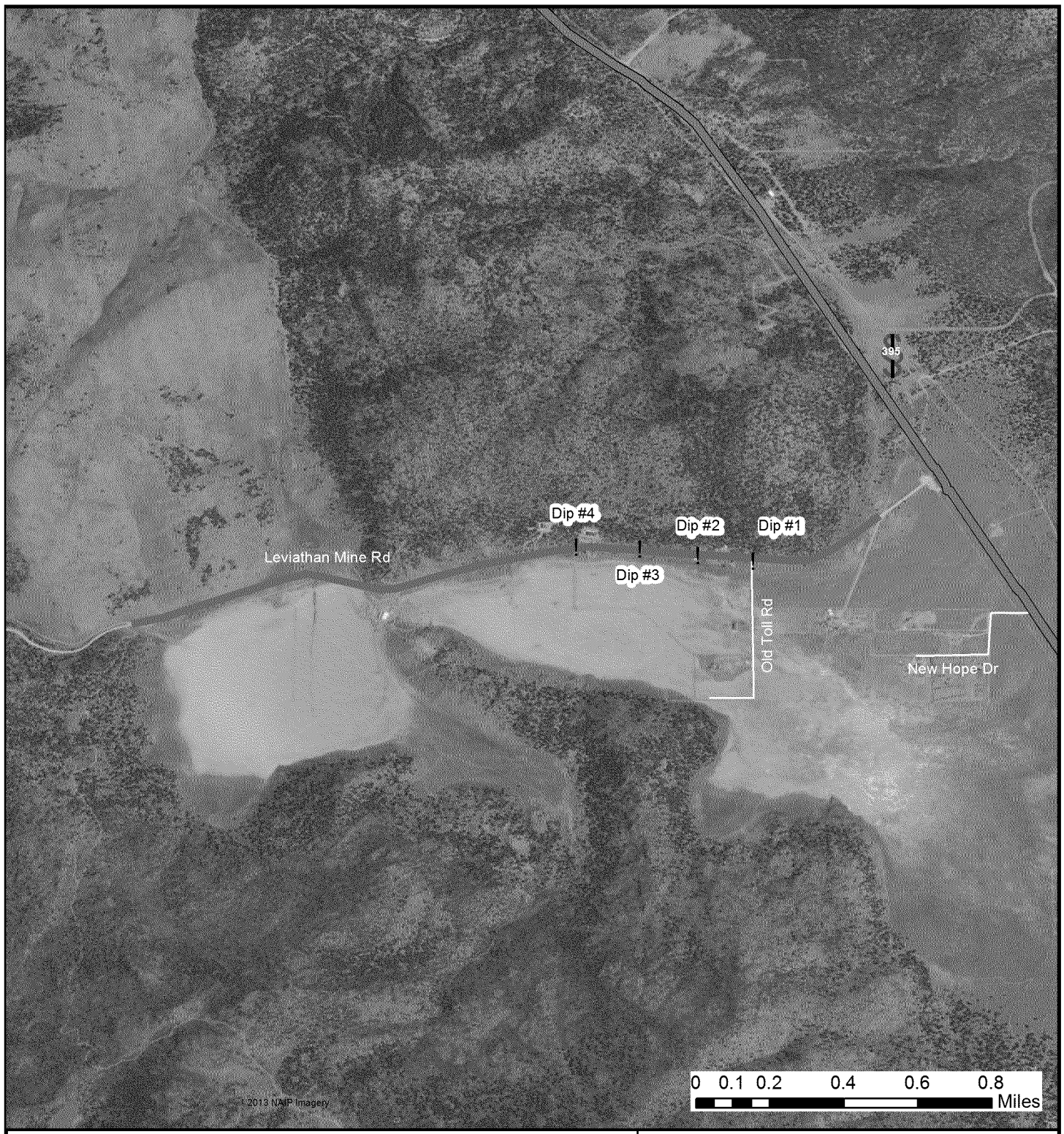
- State Route
- Highway
- Road
- Highway
- Leviathan Mine Site

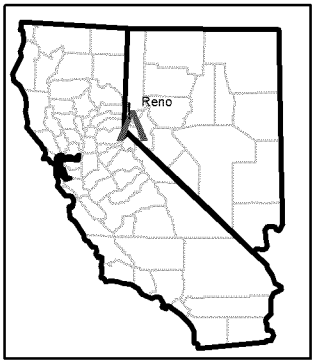
FIGURE 1

SITE ACCESS ROUTES

Copper Environmental Consulting

Date: 2/18/14	By: LG	Reviewed: MJ





Explanation

- Highway
- Envirotac II© Application Area
- Road
- Highway
- Leviathan Mine Site

FIGURE 2

DIP LOCATIONS AND ENVIROTAC II© APPLICATION AREA

Copper Environmental Consulting

Date: 2/19/14	By: LG	Reviewed: MJ

2017 ANNUAL ROAD OPERATING PLAN
ATTACHMENT C: DUST SUPRRESSION PLAN

APPENDIX A:
ENVIROTAC II® PRODUCT BROCHURE

Leviathan Mine
Alpine County, California

April 2017

EP&A
Envirotac, Inc.

78-900 Avenue 47, Suite 106
La Quinta, CA 92253
Phone: (888) 674-9174 Fax: (760) 771-9137
www.envirotac.com info@envirotac.com

ENVIROTAC II

Letter of Introduction

Environmental Products & Applications is the innovative leader for dust and erosion control in the soil stabilization field. Our product, ***Envirotac II***, is an acrylic copolymer that is extremely effective in stabilizing soil particles creating durable, long lasting roads. It will lower job costs and replace traditional rock sub-bases.

Envirotac II being applied.

Envirotac II when applied will penetrate into the soil, bonding the soil particles, and cementing them in place. The treated area becomes very resilient to wear and our unique elasticity ensures the road will survive the onslaught of vehicular traffic, rain, snow and various conditions that can wear down a road. The product is non hazardous, dries orderless, and transparent.

Envirotac II is very affordable. In most cases the cost for material is around $0.05 a square foot. Only a nickel per square foot to successfully treat a road! For dust control areas without traffice the cost is less then one penny per square foot!

History: Environmental Products and Applications has been in the soil stabilization business for over 20 years. Our product ***Envirotac II*** is the most used dust control chemical by the United States Military in the Middle East. It is used for roads, helicopter pads, runways, etc. It was at Camp Rhino, Afghanistan where it received its colorful moniker Rhino Snot, when it was used to prevent helicopter "brown outs" a problem that is caused by loose blow sand, reducing visibility.

I would like opportunity for your organization to use our product so that it may experience the benefits of ***Envirotac II*** as the solution for its soil stabilization needs.

Respectfully,

John Vermillion

John Vermillion
President

Made in USA

Envirotac II has been used by the following agencies/ companys:

United States Army	*United States Marines*	*United States Navy*
United States Air Force	*Army Core of Engineers*	*Rio Tinto*
Granite Construction	*Asarco*	*Freeport-McMoRan*
Skanska	*Ames Construction*	*Tutor Saliba*

United Nations, Haiti relief effort.....and so many more

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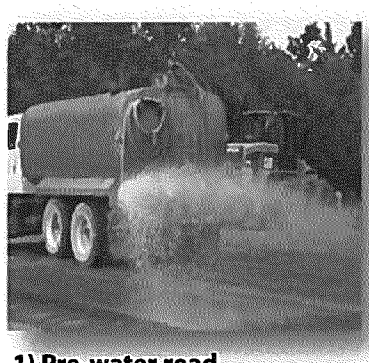
ENVIROTAC II

Application Instructions (road, no compaction)

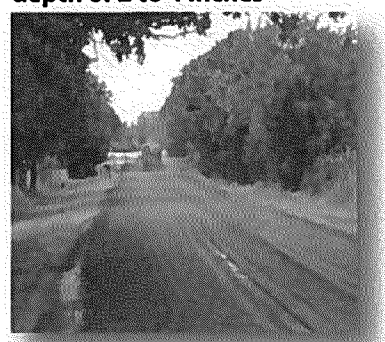


1) Pre-water road

2) Pulverize or scarify ground to depth of 2 to 4 inches

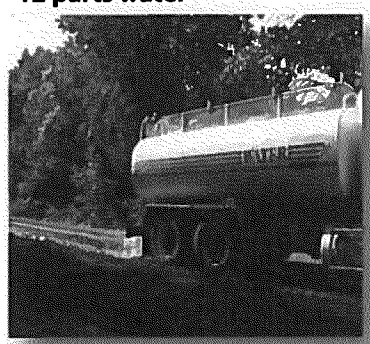
3) Pre-water disturbed road.

4) Mix one part Envirotac II to 12 parts water

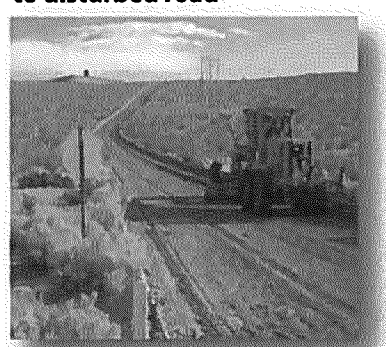


5) Apply Envirotac II solution to disturbed road

6) Wind roll soil to the center of the road



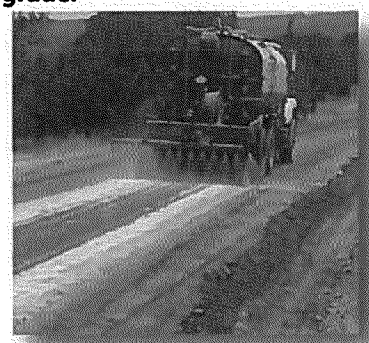
7) Apply same mix of Envirotac II



8) Blade soil at center to grade.

9) Apply one coat of Envirotac II

10) Roll area to 95% compaction



11) Apply final topical coat of Envirotac II

12) Finished road is hard as a rock!

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ENVIROTAC II

Applications / Uses

Envirotac II has a wide range of uses. The desired effect or level of protection is determined by the amount of Envirotac II applied to the treatment area. Envirotac II is the environmental solution for soil stabilization to control dust and erosion.

Unpaved Road Stabilizer

Subbase Stabilizer

Construction Site Dust Control

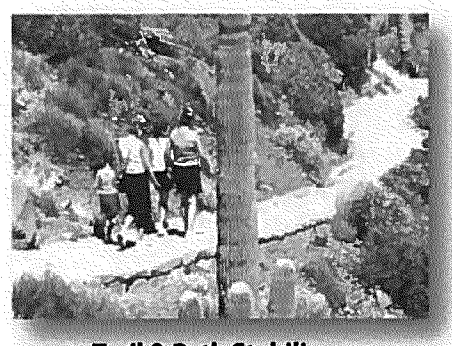
Helicopter Landing Pads

Dirt Runways Stabilizer

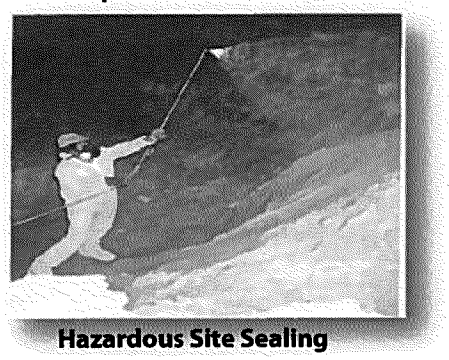
Heavy Haul Road Stabilizer

Slope Erosion Control

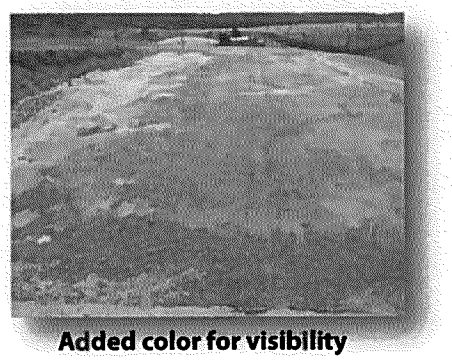
Mine Tailings Dust Control



Trail & Path Stabilizer



Hazardous Site Sealing



Added color for visibility

Parking Lots

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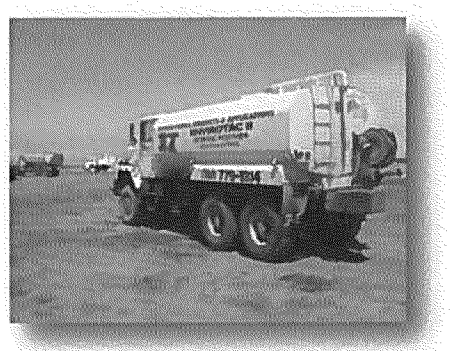
ENVIROTAC II

Application Equipment

Envirotac II is simple and easy to apply. Virtually any equipment capable of spraying water can be used to apply Envirotac II. Envirotac II is water-soluble and will not damage equipment if rinsed after use. **Self mixes with water, no agitator needed!** We offer full application services, training, consultation or basic material supply.



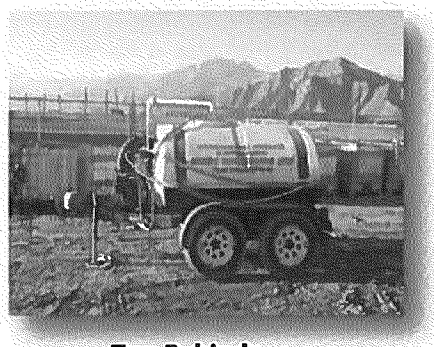
Water Truck

Computerized Spray Bars

Tractor-trailer Tankers

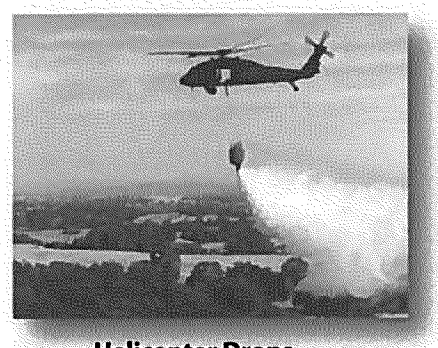
All Terrain Ag Tractors

Hydroseeder (hose or canon)

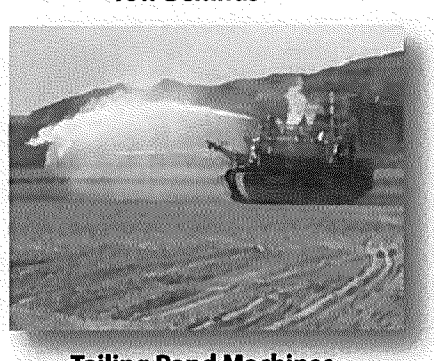


Tow Behinds

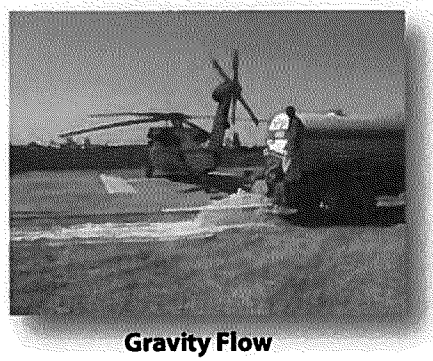
Military Sprayers



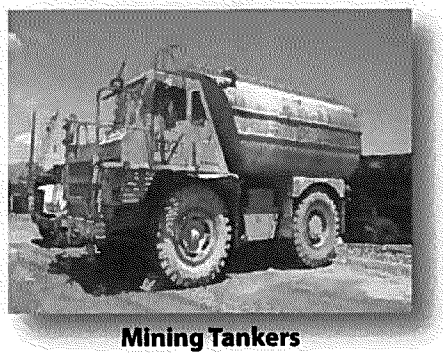
Helicopter Drops



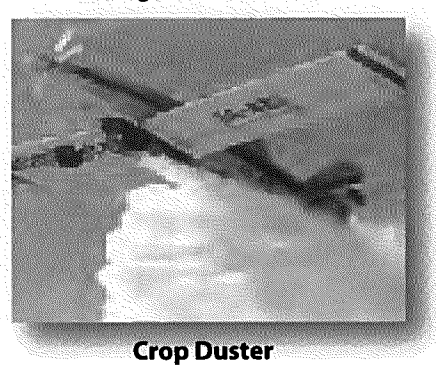
Tailing Pond Machines



Gravity Flow



Mining Tankers



Crop Duster

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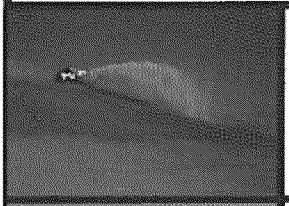
ENVIROTAC II

Frequently Asked Questions

Prices	As the manufacturer of Envirotac II, we offer Factory Direct Prices. Envirotac II is priced per gallon / liter.
Discounts	Discounts are based on volume. Substantial discounts are available with full truckloads (4,400 gallons +).
Payment Terms	COD or Net 30 upon approved credit.
Payment Method	We accept Cash, Checks, Visa, Mastercard, American Express, and all government Procurement Cards.
Bids / Proposals	We can provide material supply, shipping, consultation and application for any size project. Formal bids and proposals are available.
Minimum Order	Envirotac II can be purchased in volumes as small as a 55 gallon (208 liters) drums.
Availability	40,000 gallons (113,000 liters) of Envirotac II are available on an immediate basis.
Cure Time	Envirotac II will cure within 4-24 hours depending on the temperature.
Penetration Depth	Normal surface treatment penetrates 3/4" (2cm) deep. Application method, soil type and compaction are the determining factors.
Cold Weather	Cold weather will increase cure times.
Freezing	Freezing Envirotac II is not recommended. Polymers will coagulate and decrease the original strength.
Shipping	Envirotac II can be shipped anywhere U.S. and to any shipping port Internationally
Normal Life Span	Unpaved Roads: 12 to 24 months before reapply. Dust Control 12 to 36 months. We can custom design longer/shorter periods as needed.
Follow-up Applications	Once the application has reached the limits of it's longevity , a follow up application is necessary to restore & rejuvenate its optimal performance. Reapplying Envirotac II to previous area requires usually only 20% of the original application amount to achieve the same results.
Soil Type	Envirotac II will perform with an soil type. Different soils require different application rates.
Rain/Precipitation	Envirotac II does not dissipate (wash away) with rain. Heavier concentrations, will actually waterproof the treated surface.
Salt Water	Envirotac II is designed to be diluted with fresh water. Salt water dilution is not recommended. Salt water will chemically weaken the original strength.
Cleaning	Envirotac II is water-soluble. Application equipment should be rinsed out after application. If cured, use a de-greasing agent and hot water.

ENVIROTAC II

Application Rates

Application Description		1 Gallon Coverage** (Undiluted)	Dilution Ratio Water: Envirotac II
	Pond Lining	15-20 ft ^{2}	4:1
	Helicopter Landing Pad	24-26 ft ^{2}	4:1
	Mixed/Scarified Into Soil (3"-6" depth)	18-26 ft ^{2}	multiple*
	Heavy Haul Roads	24-28 ft ^{2}	4:1
	Unpaved Road (Surface)	35-60 ft ^{2}	4:1
	Slopes (non traffic)	170-220 ft ^{2}	7:1
	Dust Control (non traffic)	210-390 ft ^{2}	9:1
	Mine Tailings	210-450 ft ^{2}	10:1

* Request application instructions

**Coverage rates differ on traffic volume, traffic weight, soil type and compaction.

APPENDIX B:
ENVIROTAC II® SAFETY DATA SHEET

Leviathan Mine
Alpine County, California

April 2017

ENVIROTAC II

SDS
Safety Data Sheet

1) PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: Envirotac II

Supplier: Environmental Products & Applications, Inc.
78-900 Avenue 47, Suite 106
La Quinta, CA 92253
Ph: 760-777-8035 Fax: 760-771-9137 www.envirotac.com

Emergency telephone number:

Spill Emergency	888-674-9174 or 909-908-3052
Health Emergency	888-674-9174 or 909-908-3052
Chemtrec	800-424-9300

2) HAZARDS IDENTIFICATION

Emergency Overview

Hazard Summary

IRRITANT!
INHALATION OF VAPOR OR MIST CAN CAUSE HEADACHE, NAUSEA, AND IRRITATION OF THE NOSE, THROAT, AND LUNGS. MAY CAUSE EYE/SKIN IRRITATION.

GHS Ratings: 5 - Minimal, 4 - Slight, 3 - Moderate, 2 - Serious, 1 - Severe
Health: 5
Physical: 5
Environmental: 5

Potential Health Effects

Primary Routes of Entry: Inhalation
Eye Contact
Skin Contact

Eyes: Direct contact with material can cause the following: Slight Irritation

Skin: Prolonged or repeated skin contact can cause the following: Slight Irritation

Inhalation: Inhalation or vapor mist can cause the following: Irritation of nose, throat, and lungs. Headache. Nausea.

3) COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS-No.	Concentration
Acrylic polymer(s)	Not Hazardous	28.0-43.0%
Individual residual monomers	Not Required	<0.01%
Water	7732-18-5	56.0-71.0%

4) EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Limit Information:

No.		CAS REG NO	Weight (%)
1	Acrylic Polymer(s)	Not Hazardous	28.0-43.0
2	Individual residual monomers	Not Required	<0.1
3	Water	7732-18-5	56-71

Comp.		EP&A, Inc.		OSHA		ACGIH	
No.	Units	TWA	STEL	TWA	STEL	TWA	STEL
1		None	None	None	None	None	None
2		a	a	a	a	a	a
3		None	None	None	None	None	None

a...not required b...As Ammonia c...Ceiling d...OSHA Specifically Regulated

Respiratory Protection: A respiratory protection program meeting OSHA 1910.134 and ANSI Z88.2 requirements or equivalent must be followed whenever workplace conditions warrant a respirator's use. None required if airborne concentrations are maintained below the exposure limit listed in "Exposure Limit Information". For airborne concentrations up to 10 times the exposure limit, wear a properly fitted NIOSH approved (or equivalent) half mask, air-purifying respirator. Air purifying respirators should be equipped with NIOSH approved (or equivalent) ammonia/ methylamine cartridges and N95 Filters. If oil mist is present, use R95 or P95 filters.

Eye Protection: Use safety glasses with side shields (ANSI Z87.1 or approved equivalent). Eye protection worn must be compatible with respiratory protection system employed.

Hand Protection: The glove(s) listed below may provide protection against permeation. Gloves of other chemically resistant materials may not provide adequate protection.

- Neoprene

Engineering Controls (Ventilation): Use local exhaust ventilation with a minimum capture velocity of 100ft/min(0.5m/sec) at the point of vapor evolution. Refer to the current edition of Industrial Ventilation: A Manual of Recommended Practice published by the American Conference of Governmental Industrial Hygienists for information on the design, installation, use, and maintenance of exhaust systems.

) FIRST AID MEASURES

Inhalation: Move to fresh air.

Skin Contact: Wash with water and soap as a precaution. If skin irritation persists, DPOTVMa physician.

Eye Contact: Rinse with plenty of water. If eye irritation persists, consult aQIZTJDJBO

Ingestion: Drink 1 or 2 glasses of water. Consult a physician if necessary. Never give anything by mouth to an unconscious person.

) FIRE FIGHTING MEASURES

Flash point	Noncombustible
Lower explosion limit	Not Applicable
Upper explosion limit	Not Applicable
Thermal decomposition	Thermal decomposition may yield acrylic monomers.
Suitable extinguishing	Use extinguishing media appropriate for surrounding fire.
Specific hazards during fire fighting:	Material can splatter above 100C/212F. Dried product can burn.

) ACCIDENTAL RELEASE MEASURES

Personal precautions:
Use personal protective equipment.
Keep people away from upwind of spill/leak.
Material can create slippery conditions.

Environmental precautions:
CAUTION: Keep spills and cleaning runoff out of municipal sewers and open bodies of water.

Methods for cleaning up:
Contain spills immediately with inert materials (e.g., sand, earth).
Transfer liquids and solid diking material to separate suitable containers for recovery or disposal.

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├) HANDLING AND STORAGE

Handling:
Avoid contact with eyes, skin, and clothing. Wash thoroughly after handling. Keep container tightly closed. Do not breathe vapors, mist or gas.

Further information on storage conditions:
Keep from freezing-product stability may be affected. STIR WELL BEFORE USE.

→) PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	
Form	Liquid Milky
Colour	White
pH:	5.0 - ├.5
Boiling point/range:	100C (212.00F) Water
Flash point:	Noncombustible
Lower explosion limit:	Not Applicable
Upper explosion limit:	Not Applicable
Vapour pressure:	22.6666 mmHg at 20C (68.00F) Water
Vapour pressure:	22.6648 Pa at 20C (68.00F) Water
Relative vapour density:	<1.0 Water
Water solubility:	Dilutable
Relative density:	1.00 - 1.20
Viscosity, dynamic:	1,500.000 mPa.s maximum
Evaporation rate:	<1.00 Water
Percent volatility:	57-61 %

NOTE: The physical data presented above are typical values and should not be construed as a specification.

↕ ◭ STABILITY AND REACTIVITY

Hazardous reactions: None known. Stable☼

Materials to avoid: There are no materials which are incompatible with this product.

Polymerization: Product will not undergo polymerization.

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BT UP UIF BDDVSBDZ SFMJBCJMJUZ PS DPNQMFUFOFTT PG UIF JOGPSNBUJPO☼ &OWJSPONFOUBM 1SPEVDUT BOE "QQMJDBUJPOT VSHFT FBDI VTFS UP SFWJFX UIJT
JOGPSNBUJPO UP NBLF UIFJS PXO EFUFSNJOBUJPO BT UP UIF TVJUBCJMJUZ BOE DPNQMFUFOFTT GPS UIFJS BQQMJDBUJPO☼